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VOL. VI, No. 9

SEPTEMBER, 1905.

BULLETIN OF THE
UNIVERSITY OF MISSOURI



COLLEGE OF AGRICULTURE

ANNOUNCEMENT

1905-1906

SESSION BEGINS SEPTEMBER 12

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CALENDAR

September 11, 12, 13	.	.	Entrance Examinations
September 12	.	.	All Departments Open
November 29 to December 4	.		Thanksgiving Holidays
December 21 to January 4	.	.	Christmas Holidays
1906-January 9	.	.	Memorial Day
January 22-27	.	.	Midyear Examinations
January 29-31	.	.	Entrance Examinations
January 30	.	.	Second Semester Begins
May 28 to June 2	.	.	Final Examinations
June 3	.	.	Baccalaureate Sermon
June 4	.	.	Class Day
June 5	.	.	Alumni Day
June 6	.	.	Commencement Day

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FACULTY OF THE COLLEGE OF AGRICULTURE

OFFICERS OF INSTRUCTION AND ADMINISTRATION

†RICHARD HENRY JESSE, LL. D.,
President of the University.

J. C. JONES, Ph. D.,
Acting President.

HENRY JACKSON WATERS, B. S. A.,
Dean of the Faculty, and Director of the Experiment Station.

FREDERICK BLACKMAR MUMFORD, B. S., M. S.,
Professor of Animal Husbandry, Acting Dean of Faculty, Acting Director of the Experiment Station.

PAUL SCHWEITZER, Ph. D., LL. D.,
Professor of Agricultural Chemistry, and Chemist to the Experiment Station.

EDWARD ARCHIBALD ALLEN, Litt. D.,
Professor of English Language and Literature.

JOHN WALDO CONNAWAY, D. V. S., M. D.,
Professor of Comparative Medicine, and Veterinarian to the Experiment Station.

JOHN CHARLES WHITTEN, B. S., M. S., Ph. D.,
Professor of Horticulture and Horticulturist to the Experiment Station.

JOHN MOORE STEDMAN, B. Sc.,
Professor of Entomology, and Entomologist to the Experiment Station.

WILLIAM GEORGE BROWN, B. S., Ph. D.,
Professor of Chemistry.

CURTIS FLETCHER MARBUT, B. S., A. M.,
Professor of Geology and Mineralogy, and Curator of the Geological Museum.

†Absent on leave

- GEORGE LEFEVRE, A. B., Ph. D.,
Professor of Zoology.
- BENJAMIN MINGE DUGGAR, M. S., A. M., Ph. D.,
Professor of Botany.
- MERRITT F. MILLER, B. S., M. S.,
Professor of Agronomy, and Curator of the Agricultural Museum.
- OSCAR MILTON STEWART, Ph. B., Ph. D.,
Assistant Professor of Physics.
- SIDNEY CALVERT, B. Sc., A. M.,
Assistant Professor of Chemistry.
- HENRY MARVIN BELDEN, A. B., Ph. D.,
Assistant Professor of English Language and Literature.
- CLARENCE HENRY ECKLES, B. Agr., B. Sc.,
Assistant Professor of Dairy Husbandry.
- ERNEST BROWNING FORBES, B. S., B. S. A.,
Assistant Professor of Animal Husbandry.
- † WALTER LAFAYETTE HOWARD, B. Agr., B. S., M. S.,
Assistant Professor of Horticulture.
- THOMAS JACOB RODHOUSE, B. S.,
Instructor in Drawing.
- ARTHUR C. DUNCAN,
Instructor in Shopwork.
- ROBERT MONTGOMERY BIRD, A. B., B. S., Ph. D.,
Assistant Professor of Agricultural Chemistry.
- HOWARD SPRAGUE REED, A. B.,
Instructor in Botany.
- WILLIAM BENJAMIN ROLLINS, B. S.,
Instructor in Drawing.
- JOHN BLAKESLEE TIFFANY, D. V. S.,
Instructor in Veterinary Science.
- ERNEST FRANKLIN ROBINSON, B. S.,
Assistant in Drawing.
- MERRITT WESLEY HARPER, M. S.,
Assistant in Agriculture.

† On leave of absence, session 1905-6.

CHARLES BROOKS, A. B.,
Assistant in Botany.

ERNEST HOWARD FAVOR, A. B.,
Assistant in Horticulture.

CYRUS RICHARDS CROSBY,
Assistant in Entomology.

ARTHUR E. GRANTHAM, B. S. Ag.,
Assistant in Agronomy.

LECTURERS.

*D. F. LUCKEY, D. V. S., State Veterinarian,
Non-resident Lecturer on Veterinary Surgery.

‡GEORGE REEDER,
Lecturer on Climatology.

NON-RESIDENT LECTURERS TO THE SCHOOL OF AGRICULTURE.

DR. C. G. HOPKINS,
Lecturer on Agronomy (University of Illinois).

T. E. ORR,
Poultry Lecturer.

GEO. E. KESSLER,
Lecturer on Landscape Architecture.

* In the service of the State Board of Agriculture.

‡ In the service of the United States Government.

THE COLLEGE OF AGRICULTURE

The Following Courses Are Offered:

1. A four-year College Course in Agriculture.
2. An eight-weeks Winter Course in Agriculture.
3. An eight-weeks Winter Course in Animal Husbandry.
4. An eight-weeks Winter Course in Dairying.
5. Summer Courses in Agriculture and Horticulture.

The four-year Course is calculated to give the student a thorough training in technical agriculture and collateral branches. Sufficient election is permitted so that students may acquire good training in some general culture subjects. The purpose of this course is not merely to train highly efficient specialists but at the same time to make educated men and women. Students entering this course must have had a high school training or its equivalent.

The degree of Bachelor of Science in Agriculture is given to all students successfully completing the four-year course.

The Short Winter Courses.—Many young men desire to become better farmers, more skillful stockmen, stock judges, dairymen, or orchardists, but have not the time to take a four years' course of study. For these, the short courses are planned. The instruction is in everything practical, having in view especially the needs of men who must immediately turn to account the facts learned in the class room.

ADMISSION.

Students are admitted to the four-year college course either from approved high schools or upon examination. Thirteen units are required for the session of 1905-6, but a condition on one unit will be allowed for the above session. Beginning with June, 1906, fifteen units, with two conditions, will be required for entrance to this department. A unit represents one year's work of nine months in one subject in a good high school, academy, or normal school, with five forty-minute periods a week in the class room or laboratory.

Two units must be in English, but all candidates for admission are advised to offer, if possible, at least three units in English.

One unit must be in Algebra.

The remaining units may be offered as follows: Agriculture, one; Algebra, one-half; Plane Geometry, one; Solid Geometry, one; Plane Trigonometry, one-half; History—Ancient, Medieval and Modern, one, English and American, four; Latin, four; Greek, three; German, three; French, three; Spanish, three; Physics, two; Chemistry, two; General Biology, two; Zoology, two; Botany, two; Drawing, one; Manual Training, one, and Physiography, one. (See General Catalogue for detailed requirements in each subject.)

ENTRANCE EXAMINATIONS.

Examinations for admission will be held September 11, 12 and 13, 1905.

These examinations are held by the professors in charge of the subjects offered for admission. All persons who desire to enter by examination should present themselves at the Registrar's office, Room 18, Academic Hall, at 8:30 a. m., September 11. Full information concerning all entrance examinations will be given at that time. See Catalogue of the University, page 58.

ACCEPTANCE OF GRADES FROM OTHER SCHOOLS.

Grades made in schools not accredited may be submitted to the Committee on Entrance, and if satisfactory these will be accepted in lieu of examinations on the subjects submitted.

All candidates for admission from accredited schools or other institutions should write to the Committee on Entrance, Columbia, Missouri, for a printed blank to be filled out by the superintendent or other properly qualified officer, and returned to this Committee. After examining the records of the grades thus submitted, the Committee will notify the candidates by mail of their acceptance for entrance.

ADMISSION OF SPECIAL STUDENTS.

Any mature person may be enrolled as a special student, and permitted to elect certain technical courses in the Agricultural Department. It is advised that, as far as possible, all students come prepared to enter regularly the Freshman class and take the work as prescribed.

ADMISSION TO THE SHORT WINTER COURSES.

No examinations are required of students who enter any of the Short Winter Courses. Entrance to these courses is not restricted to citizens of Missouri.

The courses begin January 1, 1906, and continue for eight weeks. A special circular describing in detail the instructional

work of these special courses may be had upon application to the Dean of the College of Agriculture, Columbia, Missouri.

ADMISSION TO ADVANCED STANDING.

Any student applying for admission from other agricultural colleges or collegiate institutions will be credited with the work taken in such institutions in so far as it is equivalent to the required work of this College. Upon presentation of the official certificate earned in such institutions, the applicant will be admitted without examination, and given the rank to which he may be justly entitled.

ADMISSION TO GRADUATE STUDY.

Graduates of this College and other approved institutions of similar grade will be admitted to graduate courses, subject to the rules and regulations governing graduate study.

The degree of Master of Science in Agriculture is conferred upon such graduate students as have devoted not less than one year to graduate study under the advisory direction of the graduate committee, and have submitted a satisfactory thesis.

ADMISSION OF ACADEMIC GRADUATES.

The prescribed course in Agriculture is so arranged that graduates of the Academic Department of this Institution or of similar institutions may secure the agricultural degree in two years.

FACILITIES FOR INSTRUCTION.

Buildings:

Agricultural Hall, containing offices of Dean and Director, class rooms and offices of the Professors of Animal Husbandry and Agronomy, office of Secretary of the State Board of Agriculture, office of Division Chief of the United States Weather Bureau, and Agricultural Museum.

Horticultural Hall, a stone building, 120x54 feet, two stories and a well-lighted basement with plant house and insectary each 16x50 feet, contains class-rooms, laboratories, offices and preparation rooms for Horticulture, Botany and Entomology.

Dairy Hall, a stone building 45x150 feet, two stories with cheese curing room in basement, contains large rooms for creamery manufactures, cheese-making room, dairy work, milk-testing laboratory, offices, class-rooms, etc.

Numerous Barns, including a cattle-feeding shed 300x30 feet, a sheep barn, dairy barn, implement shed, and smaller structures. A new \$10,000 cattle barn is now building.

Shops, containing work rooms for carpentering, blacksmithing, and wood and iron turning. The Mechanical Shops are excellent.

Instruction is also given to Agricultural Students in the buildings for Chemistry, Geology, Zoology, Physics and Academic Hall.

Laboratories:

Live Stock Laboratory, containing rooms for the Department of Veterinary Science, breeding laboratory, and Stock Judging Pavilion.

Laboratories for Botany. General laboratories for physiological and structural Botany, and special laboratories and culture rooms for phases of the physiological and mycological work, are located in Horticultural Hall. The laboratories are equipped with compound dissecting microscopes, microtomes, steam and steam-pressure sterilizers, incubators, balances and much necessary glassware; an herbarium of Missouri plants and general collections from all parts of the country. The Forty-second General Assembly has appropriated funds for the erection and equipment of laboratories for practical and experimental work in plant physiology and pathology, which will give facilities enjoyed by very few institutions in the country.

Laboratories for Entomology. The laboratories are located in the new Horticultural Hall, and have in connection a new insectary. The laboratories are supplied with microscopes, dissecting instruments, microtomes, breeding cages, aquaria, spraying machines, insecticides, and reagents. The museum contains collections of the more important injurious, and beneficial insects, arranged to illustrate their habits of work and life history. There are several thousand species of adult insects from all orders correctly classified and labeled. Twelve current periodicals on Entomology are regularly received.

Laboratories for Horticulture. The laboratory facilities of the Horticulture Department comprise the following:

The experimental grounds, comprising about 1,000 varieties of fruits and a good collection of ornamental shrubs and trees, furnish excellent facilities for field laboratory work, such as methods of planting, pruning, cultivation, etc.

The department has about 3,000 square feet of forcing house space under glass, which gives opportunity for work in plant propagation and forcing house methods.

In the basement of the Horticultural building are commodious rooms for the winter storage of dormant trees, cuttings, bulbs, stocks, scions, etc., and for performing such work as grafting, budding, making cuttings and general winter nursery work.

Other Laboratories. There are well-equipped laboratories in Agronomy, Agricultural Chemistry, Veterinary Science, Dairying, Geology, Zoology and Physics.

Libraries:

The library for Agriculture and allied subjects has been carefully selected and it is believed to be one of the best collections of Agricultural books west of the Mississippi river.

Farm and Live Stock:

A farm comprising 615 acres is used chiefly for instruction and for agricultural experiments, the experiments including tests of field crops, feeding experiments with cattle, hogs and sheep, breeding experiments and investigations in Horticulture, Entomology, Botany, etc. These experiments are of the greatest possible value to students in the regular courses.

Live Stock. The College maintains herds of cattle, swine and specimen flocks of different breeds of sheep. We now have specimens of the Shorthorn, Hereford, Aberdeen Angus, Jersey and Holstein breeds of cattle. In addition to these, one hundred feeding cattle are kept continuously on the farm. Duroc Jersey, Berkshire and Poland China swine are available for instruction.

Practical Excursions:

Visits to successful farms and breeding establishments are made under the guidance of an instructor for the study of special phases of Agriculture. The principles taught in the class-room are thus observed in their application to agricultural operations on well-managed farms.

Dairy Husbandry:

The facilities for teaching Dairying include a well-equipped creamery room 40 x 51 feet, arranged for ten power separators and churns; a cheese-room 40 x 42 feet; a farm dairy room 22 x 40 feet; rooms for pasteurizing, refrigerating and cold storage; milk testing and research laboratories; a library and lecture room. A new laboratory for Dairy Bacteriology has been recently equipped. The dairy manufactures 300 to 500 pounds of butter each week throughout the year.

II. COLLEGIATE COURSE IN AGRICULTURE.

There is a constantly increasing demand for thoroughly well-trained men in Agriculture. Graduates of the Collegiate course are in great demand as farm managers, experiment-station workers, teachers of Agriculture, and editors of agricultural newspapers. The sons of farmers, also who will eventually become owners and managers of farms will find this course especially adapted to their needs.

The impression that this course is less practical than the Short Winter Courses is wholly unwarranted. The instruction in the practical subjects is more thorough than is possible in the shorter courses. The instruction given in the related sciences is essential to a clear understanding of the principles and methods of practice.

The course includes general culture subjects, and the opportunities for free electives make it possible for the student to secure a liberal education while pursuing the technical work of the course.

COURSE OF INSTRUCTION.

Freshman.

<i>First Semester.</i>		<i>Second Semester.</i>	
	Hrs. cr.		Hrs. cr.
Horticulture 1a, M. W. F., at 8.	3	English 1, M. W. F., at 8....	3
English 1, T. Th. S., at 8	3	Chemistry 1, M. W. F., 9 to	
Gen. Chem. 1, M. W. F., 9 to		12:30	3
12:30	3	Shop 1, T. Th. S., 8 to 10....	3
Botany 1a, T., 11:30; T. Th.,		Botany 2b, T., 11:30; T. Th.,	
1:30 to 4	3	1:30 to 4	3
Animal Husbandry 1a, M. W.		Dairying 1b, M. W. F., 130 to	
F., 1:30 to 4	3	4	3

Sophomore.

<i>First Semester.</i>		<i>Second Semester.</i>	
	Hrs. cr.		Hrs. cr.
Agronomy 1a, T. Th., 1:30 to 4	2	Agronomy 1b, M. W., at 8; F.,	
Entomology 1a, T. Th. S.,		1:30 to 4	3
10:30	3	Animal Husbandry 2b, T. Th.	
Zoology 1, W. F., 11:30; M.		S., 10:30	3
W., 1:30 to 3:30	3	Physics 1, W. F., 10:30; M., 9	
Physics 1, W. F., 10:30; M., 9		to 12:30	3
to 12:30	3	Zoology 1, W. F., 11:30; M.	
Agr. Chem. 1a, T. Th. S.,		W., 1:30 to 3.30	3
11:30	3	Agr. Chem. 2b, T. Th. S.,	
Elective	1	11:30	3

Junior.

<i>First Semester.</i>		<i>Second Semester.</i>	
	Hrs. cr.		Hrs. cr.
Agronomy 2a, M. W., at 8; F., 1:30 to 4	3	Horticulture 2b, 4b, or 7b, M. W. F., at 8, or hours to be arranged.. ..	3
Horticulture 3a, T. Th. S., at 8	3	Agr. Engineering 4b, M. W., 10:30; F., 10:30 to 12:30..	3
Animal Husbandry 3a, T. Th. S., at 9	3	Veterinary Science 2b, T. Th. S., 1:30 to 4	3
Veterinary Science 1a, T. Th., S., 1:30 to 4	3	Electives	6
Electives	3		

Senior.

<i>First Semester.</i>		<i>Second Semester.</i>	
	Hrs. cr.		Hrs. cr.
Geology 4a, T. Th. S., 10:30..	3	Electives	15
Electives	12		

Required Work:

All students who are candidates for a degree must satisfactorily complete 120 hours of work. Of this work, 84 hours must consist of the subjects laid down in the foregoing schedule.

Elective Work:

Students who have finished the required course in any subject may elect work in accordance with the advice and approval of the Dean. Sufficient time is given for electives in the course so that students in the upper classes may concentrate their energies upon a chosen line of work. It is advised in all cases that students elect not only a technical subject but also related science courses. A student who specializes in Horticulture should also do special work in Botany and Entomology, while a student who elects Animal Husbandry as a major should take certain courses in Zoology and Veterinary Science and a student who elects Agronomy should give more time to Chemistry and Physiological Botany. It is expected that those who intend to engage in college or experiment station work will elect modern languages at the beginning of the Sophomore year. The students should in all cases advise with the professors and secure the written approval of the Dean before electing courses.

Degrees:

The degree of Bachelor of Science in Agriculture is conferred upon all students who successfully complete the course.

The degree of Master of Science in Agriculture is conferred upon graduate students who have successfully completed at least one year of graduate work and submitted a satisfactory thesis.

Graduate Work:

The College of Agriculture fosters and encourages graduate work. Each technical department offers advanced courses leading to graduate degrees. The demand for thoroughly trained investigators and teachers is rapidly increasing and the graduate department aims to give the thorough training desired.

Fellowships:

There are three Fellowships offered in the College of Agriculture, in Agronomy, Animal Husbandry, and Horticulture, respectively. These fellowships are offered by the State Board of Agriculture and by the Board of Curators to graduates of this college, and pay \$400.00 annually. Persons appointed Fellows are permitted to do graduate work leading to the degree of Master of Science in Agriculture, and are required to give regular assistance to the department in which they are appointed.

COURSES IN DETAIL.

[Courses designated by a number with the letter *a* attached, thus; 4a, 6a, are given the first semester only. Those designated by a number with the letter *b* attached, thus: 4b, 6b, are given the second semester only. Those designated merely by a number are continuous courses and are given both semesters.]

AGRONOMY.

Professor Miller and Mr. Grantham.

1a. **Grain Judging.** A study of standard varieties of cereals including detailed methods of judging and grading. Special attention is given to corn and wheat. Two hours.

1b. **Field Crops.** Methods of cultivation, harvesting and storing of field crops, their value in different rotations and methods of improvement. Three hours.

2a. **Soils.** A study of the origin, distribution and classification of soils, their chemical and physical properties and methods of maintaining fertility by means of rotations, cultivation and fertilization. Three hours.

3a. **Advanced Agronomy.** A study of soil types in their relation to crop production, giving special attention to the chemical characters and to methods of fertilization and treatment. Students may study soils from their home farms in this work. Three hours.

3b. Advanced Agronomy. Methods of plant breeding, and the application of systematic plans of crop improvement to the needs of the practical farmer. Three hours.

4b. Agricultural Engineering. Methods of laying out farms and of constructing farm buildings, fences, drains and roads; the selection, care and handling of farm machinery. Three hours.

4. Seminary Work. Discussion of recent or special investigations in Agronomy. Students will present papers on assigned topics for discussion. One hour.

8. Research Work in Agronomy. Special subjects for investigation may be selected to suit the needs of the students who wish to do graduate work. The Experiment Station, the Agronomy laboratories and the research work being conducted on the soils of the State offer special advantages.

ANIMAL HUSBANDRY.

Professor Mumford, Assistant Professor Forbes, Mr. Harper.

1a and 1b. Live Stock Judging. Careful examination of a large number of typical animals of the best types for beef, milk, mutton, wool, pork, and labor. Freshman. Three hours.

2b. Principles of Feeding. The laws of animal nutrition; the science of feeding; composition, digestibility, value, preparation and use of feeding stuffs, feeding for fat, wool, work, and growth. Sophomore. Three hours.

3r. Principles of Breeding. The principles of animal breeding, including a discussion of variation, heredity, selection, atavism, in-breeding, cross-breeding, grading, process of fertilization, variation and significance of sex, and kindred subjects. Junior. Three hours.

4a. Breeds of Livestock. History, development and characteristics of the breeds of livestock; pedigrees and performances of superior individuals among horses, cattle, sheep, and swine. Elective. Three hours.

Beef and Pork Production and Mutton Production. A study of practical methods in the management of meat producing animals; feeding for market; fitting for show, and general management. Elective. Three hours.

6b. Advanced Stock Judging. Animal measurement. A statistical study of animal form, function and performance. Graduate and Undergraduate. Two or three hours.

7a. Experimental Breeding. Original research in original experimentation. Graduate and Undergraduate.

8b. **Horse Production.** Study of practical methods of production and farm management of horses and mules. Elective. Two hours.

9. **Seminary Studies.** Assigned reading bearing on selected lines of work in animal husbandry. Elective.

AGRICULTURAL CHEMISTRY.

Professor Schweitzer, Assistant Professor Bird.

1a. **Introduction;** functions of the plant, including production, conversion, transportation, deposition of organic matter; structure of cell, respiration, membranous diffusion, assimilation; ash constituents.

2b. **Soil**—its formation, composition, alteration by mechanical, chemical, biological agencies; its properties, manures, theory of rotation of crops; farm sanitation; air, water, food; preservation of food, and adulterations.

3. **Graduate Work.** Arranged as conditions and aims of students render it feasible.

BOTANY.

Mr. Reed, Dr. Shantz, Mr. Brooks, Mr. Grossenbacher.

For Undergraduates.

1a. **General Botany.** Elementary plant physiology and morphology of lower cryptogams. Lectures and laboratory work. Three times a week.

2b. **General Botany.** Continuation of 1a., Embryology and anatomy of higher cryptogams and angiosperms. Lectures, laboratory and field work. Three times a week.

3a. **The Ecology and Distribution of Plants.** The plant societies in the vicinity of Columbia and their relation to environment as exhibited in habits and form. Lectures, laboratory and field work. Three times a week.

4a. **General Morphology.** The form and structure of the higher plants in general. Lectures and laboratory work. Three times a week.

For Undergraduates and Graduates.

6. **Mycology.** Studies of representative groups of fungi and their relation to plant pathology. Lectures and laboratory work. Three times a week.

7b. **Embryology.** A study of the processes of reproduction of typical groups of green plants. Lectures and laboratory work. Three times a week.

8b. **Histology and Cytology.** Study of cell structure, tissue structure and comparative anatomy. Lectures and laboratory work. Three times a week.

9b. **Advanced Physiology.** A study of nutrition and growth, the effects of toxic agents, and response to external stimuli exhibited by plants. Lectures and laboratory work. Three times a week.

10. **Special Problems.** A course introductory to graduate research. Conferences and laboratory work. Three or more times a week.

Primarily for Graduates.

12. **Research.** Original investigation of some special line of work. Three or more times a week.

13. **Seminary.** Reading and reports upon recent work in botany and upon research in progress in the laboratory. Once a week.

DAIRY HUSBANDRY.

Assistant Professor Eckles.

Elements of Dairying. This is the foundation course in the dairy department. In it the student learns the composition of milk, butter, cheese, etc., the relation of bacteria to dairying and how to handle the several machines necessary to the manufacture of butter.

Cheese Making. This course teaches the principles and the practice of modern cheese making on a large scale and also on a scale adapted to farm conditions. In this course the student spends most of his class time in the work room.

Dairy Farming. This course takes up the subject from the standpoint of the producer and considers the breeding, selection, care and feeding of cows for the dairy, the raising of feeds, and stable construction.

Dairy Bacteriology. This course teaches the nature of bacteria their characteristics and how to identify and isolate the many varieties and determine their usefulness. The flavor of butter and cheese is largely dependent upon the kind and number of bacteria growing in them.

DRAWING.

Mr. Rodhouse; Mr. Rollins, and Mr. Robinson.

1a. **Agricultural Drawing.** Designing buildings and machinery and planning repairs on the farm. Freehand drawing, shading, projections and constructions. Sophomore.

Horticulture.

Professor Whitten, Acting Assistant Professor Shaw, Mr. Favor.

1a. **Plant Propagation.** Lectures and laboratory exercises. A consideration of the methods by which plants are propagated in nature, as well as under culture, from seeds and from buds. Nursery practices.

2b. **Small Fruits and Vegetable Gardening.** Lectures and assigned readings in connection with the planting, cultivating, harvesting and marketing of berries and garden vegetables.

3a. **Orcharding.** Lectures and required readings upon the propagation, planting, cultivation, pruning, gathering and marketing of orchard tree fruits.

4b. **The Evolution of Cultivated Plants.** Lectures and assigned readings. A study of organic evolution as applied to the modification of plants, particularly those in cultivation. Plant breeding.

5b. **Greenhouse Construction and Management.** Lectures and required readings upon the construction and management of forcing-houses, hotbeds, and cold frames.

6a. **Forestry.** Forest influences on climate, soil and the flow of streams; something of the forest geography of the country; the management of forests, and the uses to which forest products are put.

7b. **Landscape Gardening.** Lectures, readings and out-of-door observations. Principles and practices pertaining to ornamentation of public and private grounds.

8. **Special Investigation.** Special topics for investigation are assigned to individual students.

9w. **General Horticulture.** The propagation, transplanting, cultivation, gathering, marketing and general management of fruits and vegetables.

Entomology.

Professor Stedman, Mr. Crosby.

2a. **Economic Entomology.** Lectures three times per week on the habits and methods of fighting insects injurious to orchard, garden, livestock and farm products. Preparation and use of insecticides, machines for spraying, and discussion of beneficial insects.

2w. **Economic Entomology.** Condensed lectures covering the same ground as the above, although in much briefer form, for students pursuing the short winter course in horticulture and agronomy.

3. **Advanced Entomology.** Lectures and laboratory work on the life history, anatomy, distribution and economy of injurious and beneficial insects, and the determination of species.

4. **Graduate Work in Entomology.** Original research, monographing a species or a group, whether beneficial or injurious or otherwise.

Meteorology.

Mr. Reeder.

The earth's atmosphere, its composition, temperature, pressure, and circulation—dew, frost, clouds, rainfall, cyclones, thunder storms and tornadoes, weather and climate.

Rural Economics.

Professor Pope.

2a. **Agricultural Economics.** Study of the agricultural industry and the institutions and conditions, such as markets, banks, transportation systems, tariffs, tendency, and co-operation which affect the results from farm operations.

Shop-Work.

Mr. Cook, Mr. Duncan, Mr. Bowen.

Wood-Work. Carpentry and joinery; use of ordinary tools.

Forging. Welding, tempering, case-hardening, annealing, etc. Students are required to make simple farm tools and appliances.

Veterinary Science.

Professor Connaway, Mr. Tiffany.

1a. **The Anatomy, Physiology, and Hygiene of the Domestic Animals.** This course includes the complete dissection of a horse

and some ruminant. Study is made of normal and diseased tissue and its process of repair.

2b. **Veterinary Medicine and Surgery.** This is a study of the common diseases as those affecting the alimentary tract, respiration, circulation, skin, etc. A large free clinic furnishes ample material for practical work.

3a. **Contagious, Infectious, and Parasitic Diseases.** This course includes a study of influenza, glanders, black-leg, tuberculosis, Texas fever, etc.

5. **Experimental Study of Veterinary Remedies.** This course is for veterinary practitioners.

4. **Experimental Study of Contagious and Infectious Diseases.** Graduate.

6. Research work for graduates.

7w. Elementary course in Veterinary Science dealing with symptoms and treatment of simple diseases incident to farm management. For Short Winter Course students.

Zoology.

Professor Lefevre, Assistant Professor Curtis.

1. **General Zoology.** The course is designed to lay the foundation of the general principles of Zoology, and at the same time, to prepare the student for subsequent work in Animal Husbandry, especially in Animal Breeding.

STUDENT ORGANIZATIONS.

The agricultural students maintain an Agricultural Club, with a large membership, which has for its object the promotion of all student enterprises undertaken for the good of the College. A Horticultural Club, made up of those especially interested in horticulture, meets regularly to discuss questions relating to the subject of horticulture. In addition to these, many of the University debating societies and other organizations are open to agricultural students.

STUDENT PUBLICATIONS.

The agricultural students publish a very successful agricultural paper, called The Missouri Agricultural College Farmer. This paper is a somewhat technical journal, printed on good paper, with excellent illustrations. It is controlled by a board of editors elected by the Agricultural Club.

DORMITORIES FOR MEN.

The University has accommodations for about 140 men in Benton and Lathrop Halls. In Lathrop Hall a dining-room and kitchen furnish accommodations for nearly 400 boarders. Application to the Halls or to the Boarding Club should be made at an early date, to Secretary J. G. Babb, Columbia, Missouri.

STUDENT EXPENSES.

The annual expenses for attending the University depend largely upon the individual. There are no tuition fees charged in any department. An incidental fee of \$5 is paid by each student. A deposit of \$5 is required for each laboratory, to cover the cost of breakage or damage to apparatus; a portion of this money may be returned. Other necessary expenses for college year will vary, as indicated in the following estimate:

Furnished rooms, without board	\$ 40 00 to \$ 90 00
Table Board	70 00 to 170 00
Books and Stationery	20 00 to 30 00
Incidentals, Laundry, etc.	15 00 to 40 00
<hr/>	
Total	\$145 00 to \$330 00

The above are to be considered only estimates, and may not include all the expenses considered necessary by individuals. Many students pay their own way through the University, entirely by work around the University or for citizens in Columbia. A labor bureau is maintained by the Young Men's Christian Association, which has for its object the securing of employment for all students who apply. While it is possible for a student to pay his own way through college it is, in general, better to come with sufficient money for at least the first year's expenses.

Fuller information regarding all the above facts may be secured by writing to the Dean of the College of Agriculture, Columbia, Missouri.

F. B. MUMFORD, Acting Dean.

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THE UNIVERSITY OF MISSOURI BULLETIN

GENERAL SERIES

VOLUME 12 NUMBER 10

ANNOUNCEMENT
OF THE
COLLEGE OF AGRICULTURE
(Regular Session)
1911-12

MAR 6 1917



UNIVERSITY OF MISSOURI
COLUMBIA, MISSOURI
October, 1911

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COLUMBIA, MISSOURI

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COLUMBIA, MISSOURI
October, 1911

UNIVERSITY CALENDAR AT COLUMBIA.

SUMMER SESSION.

1911—June 9, Friday Registration, Summer Session
June 10, Saturday Organization of Classes
August 9, Wednesday Lectures Close
August 10, Thursday }
August 11, Friday } Examinations

First Semester.

September 18, 19, 20. Entrance Examinations and Registration
September 21, Thursday, at 8 a. m.

Class Work in all Divisions Begins

September 21, Thursday, at 10 a. m. Opening Convocation

November 30, Thursday, Thanksgiving Day Holiday

December 12, Tuesday Semi-Annual Meeting of Curators

December 22, Friday, at 12 m. to }
1912—January 3, Wednesday, at 9 a. m. } Christmas Holidays

January 27, Saturday, to

February 3, Saturday Mid-Year Examinations

Second Semester.

January 31, February 1, 2, Wednesday, Thursday
and Friday Entrance Examinations

February 2, 3, Friday and Saturday

Registration, Second Semester

February 5, Monday, at 8 a. m.

Class Work in All Divisions Begins

February 8, Thursday, at 10 a. m. Opening Convocation

February 22, Thursday, Washington's Birthday Holiday

April 4, Thursday Quarterly Meeting of Curators

April 4, Thursday at 4 p. m. to April 9

Tuesday at 9 a. m. Easter Holidays

June 1, Saturday to June 8, Saturday Final Examinations

June 8, Saturday Stephens Medal Contest

June 9, Sunday Baccalaureate Sermon

June 10, Monday Class Day

June 10, 11, 12, Monday, Tuesday and Wednesday

Entrance Examinations

June 11, Tuesday Class Re-union Day

June 12, Wednesday Alumni Day

June 13, Thursday Annual Meeting of Curators

June 13, Thursday Commencement Day

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THE UNIVERSITY OF MISSOURI.

The University of Missouri was located at Columbia, Missouri, in 1839, and instruction in Academic work was begun in 1841. In the course of its development the institution has found itself called upon to organize several departments of instruction and administration in response to the needs of the several vocations followed by the citizens of the State.

The present organization, with two colleges, (Arts and Science, and Agriculture) and schools for professional and graduate work, was adopted May 31, 1909. The separate divisions, each of which was in some form differentiated from the rest of the institution in the year indicated, are as follows:

- I. College of Arts and Science (1839).
- II. School of Education (1867).
- III. College of Agriculture (1870).
- IV. School of Mines and Metallurgy at Rolla (1870).
- V. School of Law (1872).
- VI. School of Medicine (1873).
- VII. School of Engineering (1877).
- VIII. Graduate School (1896).
- IX. School of Journalism (1906).

In addition, special emphasis is given particular lines of work by the establishment and operation of special minor divisions, the chief of which are the Extension Division, the Agricultural Experiment Station, the Engineering Experiment Station, and the Military Department. All of these divisions are located at Columbia with the exception of the School of Mines and Metallurgy, which is situated at Rolla.

Columbia, a town of about 10,000 inhabitants, is situated near the center of the State, half way between St. Louis and Kansas City. It is reached from the east, north, and west by the Wabash Railroad, and connecting lines. The Missouri, Kansas and Texas Railroad affords a direct route to Columbia to persons living on that line, and to those living on the Missouri Pacific, St. Louis and San Francisco, and other southern railroads.

The surrounding region is elevated, well drained and diversified. The University grounds comprise over seven hundred acres of undulating land in the southern part of the town and its outskirts.

The main divisions of the grounds are the Quadrangle of thirty-two acres, the Horticultural grounds of thirty acres, the Physical Education grounds, and the Experiment Farm of 648 acres.

The University has the following buildings at Columbia: Academic Hall, Laws Observatory, separate buildings for Chemistry, Zoology and Geology; Engineering, and Mechanic Arts; three power-houses; Medical Laboratory Building, Parker Memorial Hospital including the Busch Clinic, and an Animal Building; Agricultural Building, Horticultural Building and Green Houses, Live-Stock Judging, Dairy, Farm Machinery, and Veterinary Buildings, and the Agricultural Farm Barns and Buildings; Switzler Hall (Journalism); the President's House, and the dwelling of the Dean of the College of Agriculture; Benton and Lathrop Halls (dormitories for men), Read Hall (dormitory for women), and the Gymnasium (for men). The women's Gymnasium is housed in Academic Hall, and the practice schools of the School of Education in an old dwelling belonging to the University and in a good building, originally erected for an academy.

OFFICERS OF INSTRUCTION AND ADMINISTRATION.

ALBERT ROSS HILL, A. B., Ph. D., LL. D.,

President of the University.

FREDERICK BLACKMAR MUMFORD, B. S., M. S.,

Professor of Animal Husbandry, Dean of the College of Agriculture, and Director of the Experiment Station.

HENRY MARVIN BELDEN, A. B., Ph. D.,

Professor of English Language and Literature.

EDWIN BAYER BRANSON, A. B., A. M., Ph. D.,

Professor of Geology and Mineralogy.

CHESTER LELAND BREWER,

Professor of Physical Training.

WILLIAM GEORGE BROWN, B. S., Ph. D.,

Professor of Chemistry.

SIDNEY CALVERT, B. S. C., A. M.,

Professor of Organic Chemistry.

JOHN WALDO CONNAWAY, D. V. S., M. D.,

Professor of Comparative Medicine and Veterinarian to the Experiment Station.

WINTERTON CONWAY CURTIS, A. B., A. M., Ph. D.,

Professor of Zoology.

CLARENCE HENRY ECKLES, B. S. in Agr., M. S.,

Professor of Dairy Husbandry, and in charge of the Dairy Department of the Experiment Station.

LIEUTENANT ELLERY FARMER,

Professor of Military Science and Tactics.

WALTER LAFAYETTE HOWARD, B. S., M. S., Ph. D.,

Professor of Horticulture.

GEORGE LEFEVRE, A. B., Ph. D.,

Professor of Zoology.

*CURTIS FLETCHER MARBUT, B. S., A. M.,

Professor of Geology and Meteorology and in charge of the State Soil Survey.

*MERRITT FINLEY MILLER, B. S., M. S. A.,

Professor of Agronomy, and Agronomist to the Experiment Station.

HERMAN SCHLUNDT, B. S., M. S., Ph. D.,

Professor of Physical Chemistry.

PERRY FOX TROWBRIDGE, Ph. B., A. M., Ph. D.,

Professor of Agricultural Chemistry, and Chemist to the Experiment Station.

JOHN CHARLES WHITTEN, B. S., M. S., Ph. D.,

Professor of Horticulture, and Horticulturist to the Experiment Station.

HARRY ORSON ALLISON, B. S.,

Assistant Professor of Animal Husbandry.

FRANK HOWARD DEMAREE, B. S. in Agr.,

Assistant Professor of Agronomy, and Agronomist to the Experiment Station.

DUANE HOWARD DOANE, B. S. in Agr., M. S.,

Assistant Professor of Farm Management.

ELIAS JUDAH DURAND, A. B., D. S. C.,

Assistant Professor of Botany.

CLAUDE BURTON HUTCHISON, B. S. in Agr.,

Assistant Professor of Agronomy.

GEORGE MATTHEW REED, A. B., A. M., Ph. D.,

Assistant Professor of Botany.

†GEORGE REEDER, Section Director, U. S. W. B.,

Lecturer on Climatology.

ROBERT WASHINGTON SELVIDGE, B. S., A. M.,

Assistant Professor of Manual Training.

†*MATTHEW STEELE, B. S., M. S., Ph. D.,

Assistant Professor of Dairy Husbandry.

EDWIN A. TROWBRIDGE, B. S. in Agr.,

Assistant Professor in Animal Husbandry.

LEE SELDON BACKUS, D. V. M.,

Instructor in Veterinary Science.

WILLIAM HENRY CHANDLER, B. S. in Agr., M. S. in Agr.,

Instructor in Horticulture.

RICHARD HUFF EMBERSON, B. S.,

Instructor in Rural Education.

FREDERICK VALENTINE EMERSON, A. B., Ph. D.,

Instructor in Geology.

JAMES ANDREW GIBSON, B. A., M. A.,
Instructor in Chemistry.

LEONARD HASEMAN, A. B., A. M., Ph. D.,
*Instructor in Entomology and Entomologist to the Agricultural
Experiment Station.*

HORACE FAIRCHILD MAJOR, B. S. in Agr.,
Instructor in Landscape Gardening.

CHARLES ROBERT MOULTON, B. S., M. S. in Agr.,
Instructor in Agricultural Chemistry.

LORIN GEORGE RINKLE, B. S., M. S. in Agr.,
Instructor in Dairy Husbandry.

MISS LOUISE STANLEY, B. S., M. A.,
Instructor in Home Economics.

†ARTHUR T. SWEET, A. B.,
Scientist Soil Survey in the U. S. Department of Agriculture.

ARCH M. ALLEN, B. S. in Agr.,
Assistant in Dairy Husbandry, Short Course.

LEONARD A. ALLEN, B. S. in Agr.,
Assistant to the Dean and Director.

THOMAS RANKIN DOUGLASS, B. S. in Agr.,
Assistant in Agronomy.

MURRY STAR GARDNER, B. S.,
Assistant in Agronomy, Short Course.

HOWARD HACKEDORN, B. S. in Agr.,
Assistant in Animal Husbandry.

LEONARD DIXON HAIGH, B. S., M. S.,
Assistant in Agricultural Chemistry.

JAY COURTLAND HACKLEMAN, B. S. in Agr.,
Assistant in Agronomy.

WILBUR JORDON HENDRIX, B. S. in Agr.,
Assistant in Agronomy.

OLIVER RAY JOHNSON, B. S. in Agr.,
Assistant in Farm Management.

ARTHUR ANWYL JONES, B. S., M. S. in Agr.,
Assistant in Agricultural Chemistry.

MARY LUCILLE KEENE, B. S. in Ed., A. B.,
Assistant in Botany.

JAMES P. KERR,

Assistant in Poultry Husbandry, Short Course.

LOUIS OTTO KUNKEL, B. S. in Ed.,

Assistant in Botany.

HENRY H. KRUSEKOPF, B. S. in Agr.,

Assistant in Soil Survey.

EARL G. MAXWELL, B. S. in Agr.,

Assistant in Dairy Husbandry.

HOMER E. McNATT, B. S. in Agr.,

Assistant in Dairy Husbandry.

ARTHUR J. MEYER,

Assistant in Animal Husbandry, Short Course.

LORING EDWIN MORGAN, A. B.,

Assistant in Agricultural Chemistry.

NELL NESBITT, B. S. in Ed., A. B.,

Assistant in Home Economics.

LEROY SHELDON PALMER, B. S. in Ch. E.,

Assistant in Dairy Husbandry.

HARRY LEE REES, A. B.,

Assistant in Botany.

FRED CLARE STREETER, B. S. in Agr.,

Assistant in Veterinary Science.

CHARLEY C. TIDD, B. S. in Ed.,

Assistant in Home Economics.

EARL S. VANATTA, B. S. in Agr.,

Assistant in Soil Survey.

LUTHER ABRAHAM WEAVER, B. S. in Agr.,

Assistant in Animal Husbandry.

GEORGE CLEVELAND WHITE, B. S. in Agr.,

Assistant in Dairy Husbandry.

ROY C. BISHOP,

Student Assistant in Agricultural Chemistry.

HERBERT B. CARPENTER,

Student Assistant in Botany.

† WILLIAM ROY HECHLER,

Student Assistant in Agronomy.

GEORGE S. TEMPLETON,

Student Assistant in Veterinary Science.

DON GILMER MAGRUDER, A. B.,

Student Assistant in Farm Management.

CHESTER M. McWILLIAMS,

Student Assistant in Animal Husbandry.

FRANKLIN M. McCROSKY,

Student Assistant in Agronomy.

JOSEPH OSKAMP,

Student Assistant in Horticulture.

EDNA E. RALSTON,

Student Assistant in Botany.

OLIN STUART RAYNER,

Student Assistant in Agronomy.

SILAS T. SIMPSON,

Student Assistant in Animal Husbandry.

MINNIE SNELLINGS,

Student Assistant in Botany.

JAMES T. THURMAN,

Student Assistant in Agronomy.

CLEO CLAUD WIGGANS,

Student Assistant in Horticulture.

HOBART F. WILLIAMS,

Student Assistant in Agronomy.

*On leave of absence.

†In the service of the United States Department of Agriculture.

OPPORTUNITIES IN AGRICULTURE.

A man who is thoroughly well trained in Agriculture has before him unlimited opportunities for a useful career. Young men who are undecided as to their future careers will find in the agricultural resources of Missouri a promising field. More than a million and a half people live on Missouri farms or are directly dependent upon agriculture for their livelihood. The vocation of farming is not crowded. Other professions are crowded. Special training for agriculture will contribute as efficiently to the success of the future farmer as such special training has contributed to engineering, law or the other professions.

The College has not been able to supply the demand for its graduates as farm managers, teachers in agricultural colleges and high schools, investigators in Experiment Stations, scientific aids in the United States Department of Agriculture, foresters, farmer's institute lecturers and agricultural journalists.

EDUCATION FOR AGRICULTURE.

The University of Missouri believes that the young man who is to manage a good Missouri farm is entitled to the same high grade of instruction as the man who is to become a lawyer, a physician, a preacher, or a teacher. It maintains, therefore, a four-year course in Agriculture, requiring the same preparation for entrance as the other Colleges and Schools of the University. Educating men for a vocation so fundamentally important to the state is regarded by the University as a sacred obligation imposed upon it by the Federal and State Governments. Large investments in buildings and equipment have been provided for making the instruction in Agriculture second to none. Many trained teachers, each an expert in his line, have been gathered in the faculty of the College of Agriculture for giving to Missouri men the best available instruction in Agriculture. There is no important phase of Agricultural instruction which is not given at Columbia.

THE MISSOURI COLLEGE OF AGRICULTURE.

The College of Agriculture at Columbia is the only institution organized by the State of Missouri for the express purpose of training for successful agriculture. It is the function of the College to train men and women for successful living in the open country.

It accomplishes this by educating farmers, dairymen, fruit growers, grain growers, stockmen, foresters, and teachers of these subjects.

During the session of 1910-11 the College of Agriculture gave some special instruction in Agriculture to 2154 persons at Columbia. This number includes 1300 persons who attended the Farmers' Short Course in January. Of the total number over 1800 are now on Missouri farms putting into practice the better methods of Agriculture taught here.

ADMISSION.

Fifteen units, the equivalent of a four-year high school course, are required for admission to the four-year college course in Agriculture. A unit is the equivalent of a high school subject pursued five periods a week for at least thirty-six weeks.

Students intending to enter the College of Agriculture are urged to offer units in science; if only one science is taken, it is recommended that it be Physics. Three of the units offered must be in English, and one in Algebra. The remaining units may be selected from the following list:

SUBJECTS ACCEPTED FOR ADMISSION.

The subjects in which entrance units may be offered, the minimum and the maximum number of units that may be offered in each subject, and the number of units required in certain subjects for each College or School, are presented in the table given on the following page.

Graduates from approved high schools are admitted without examination. Students may prepare for the University by private study and take the entrance examinations which are held at Columbia, September 18, 19 and 20, 1911. (See Catalog.)

Applicants for admission who are deficient in a small portion of the requirements may be admitted conditionally at the discretion of the Committee on Entrance.

All prospective students should write to the Committee on Entrance, Columbia, Missouri, for further information in reference to admission.

SPECIAL STUDENTS.

Mature men and women may be admitted to the College of Agriculture for special study in such subjects as they are prepared to pursue with profit to themselves. Such students must be at least twenty-one years of age. Special students are not candidates for degrees and cannot become such until they have fulfilled all requirements for admission.

SUBJECTS ACCEPTED FOR ADMISSION.

SUBJECTS.	Required in the Several Divisions.	
	Min..	Max..
	Arts and Science and Agriculture...	Arts and Science....
English	4	3
Algebra	2	1
Plane Geometry	1	1
Solid Geometry	$\frac{1}{2}$	$\frac{1}{2}$
Plane Trigonometry	$\frac{1}{2}$	$\frac{1}{2}$
Advanced Arithmetic	$\frac{1}{2}$	$\frac{1}{2}$
History	4	1
Civil Government	$\frac{1}{2}$	$\frac{1}{2}$
Latin	4	2
Greek	3	2
German	3	2
French	3	2
Spanish	3	2
Physics	2	1
Chemistry	2	1
General Biology	1	1
Zoology	2	1
Botany	2	1
†Physiology	1	1
Physical Geography	1	1
Agriculture	1	1
Music	1	1
Drawing	2	1
*Manual Training	2	1
*Domestic Science and Art	2	1
*Economics	$\frac{1}{2}$	$\frac{1}{2}$
*Commercial Geography	$\frac{1}{2}$	$\frac{1}{2}$
*Bookkeeping	1	1

†In cases where the study of Physiology has been preceded by a year's study of Biology.

*The maximum amount of commercial and industrial subjects accepted is four units.

**Students in Medicine must offer two units in Latin to satisfy the college entrance requirements in foreign language.

ADMISSION FROM OTHER COLLEGES.

Any graduate of a recognized standard college may enter the College of Agriculture and complete all the requirements for the degree of B. S. A. in approximately two years. If a student has completed two years' college work in any standard or junior college and has specialized in science he can complete all the requirements for graduation in Agriculture in the same time.

FEES AND EXPENSES.

Tuition in the College of Agriculture is free. An incidental and library fee of \$5.00 for each semester is required of all Missouri students. The fee for students from outside the state is \$10.00 a semester. In laboratory courses a deposit is required to pay for the material used and damage to scientific apparatus.

The necessary expenses for the Freshman year are estimated in the table given herewith:

Estimated Expenses of Freshman Year:

Library and incidental fee.....	\$10.00
Room rent and room furnishings.....	35.00
Dining room permit and initiation fee.....	23.00
Caution deposit	8.00
Board for forty weeks	60.00
Books, stationery and school supplies.....	25.00

Laboratory deposits:

Chemistry, \$5.00; Botany, \$5.00; Dairy, \$5.00;

Chemistry, \$5.00

Laundry, \$15.00; Incidentals, \$25.00

\$221.00

The above estimate does not include cost of travel, clothing or entertainments, and assumes that the student will live in the university dormitories. The cost of board and room out in town will be higher.

The following interesting table which was prepared by the Dean of the School of Education gives the actual expenses of eighteen Senior men and women of the University:

Itemized Statement of Expenses of 9 Men and 9 Women for the Regular Session of 1909-10.

Men	Tuition and Fees	Board	Rent	Laundry	Books and Stationery	Clothing	Subscriptions and Dues	Amusements	Miscellaneous	Total	Earned	Amount saved by economizing
1	\$15	\$135	\$45	\$18	\$15	\$70	\$10	\$150	\$25	\$483	\$200	\$
2	17	108	29	7	25	115	45	20	35	401	63	125
3	12	145	100	13	12	40	12	3	8	333		70
4	10	75	50	25	12	70	8	20	30	300	250	50
5	10	100	50	15	15	50	10	25	25	290	100	96
6	10	115	35	15	10	50	10	20	20	285	10	25
7	25	112	45	15	15	30	10	10	10	267		
8		77	54	14		14	10	5	56	230	250	
9	5	80	48	10	12	60	5		5	225	60	
Women												
1	10	144	57	35	18	150	5	75	36	530		150
2	60	148	54	19	15	135	3	5	10	449		
3	5	135	50	20	25	100	10	5	50	400		25
4	5	150	50	30	18	75	10	20	20	378		100
5	13	144	54	30	25	75	10	5		356	15	50
6	10	135	54	20	15	75	10	5	10	334		25
7	10	150	51	25	10	50	10	5	10	321		
8	10	140	40	20	15	50	5	10	10	300	250	
9	5	135	45	20	15		20	8	27	275		

PAYING ONE'S WAY THROUGH THE UNIVERSITY.

It is variously estimated that from twenty to thirty per cent of the students in the College of Agriculture are paying all or a considerable portion of their expenses by working while attending the University. Such students work for the various departments of the College in caring for the live stock, assisting in the Dairy Department, working for the Experiment Station, helping in the preparation of hog cholera serum and giving assistance in pruning, spraying and planting on the Horticultural grounds. Two hundred and thirty-one students were given a greater or less amount of work in these various departments during the past year.

Students also find employment in Columbia caring for furnaces, waiting on tables, clerking and numerous other ways.

DEGREES.

The degree of Bachelor of Science in Agriculture is conferred upon all students completing the regular agricultural course.

Master of Science in Agriculture is awarded for one year's graduate study in the technical subjects of the College and the submission of a satisfactory thesis.

The degree of Doctor of Philosophy is conferred upon graduate students who have devoted not less than three years of advanced study to some special branch and have attained exceptional proficiency in original research.

COURSES OF INSTRUCTION.

- A. Graduate. See special Graduate Announcement.
- B. Four year Course in Agriculture for men. See page 18.
- C. Four Year Course in Agriculture and Home Economics for Women. See page 20.
- D. Four Year Course in Forestry. (To be announced later.)
- E. Two Year Winter Course. See special circular.
- F. Farmers' Short Course.

B. FOUR YEAR CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE.

The schedule printed below includes the number of hours and the subjects prescribed for the degree in agriculture. Where electives are indicated the student is permitted to select other university subjects.

CURRICULUM.*

Freshman—Group I.

<i>First Semester.</i>	<i>Second Semester.</i>
Agronomy 1a 3 hrs.	Animal Husbandry 1.... 2 hrs.
Animal Husbandry 1 .. 3 "	Chemistry 25b 5 "
Botany 1a 5 "	Dairy Husbandry 1b.... 3 "
Chemistry 4a or 6a..... 5 "	English 1b 5 "
<hr/> 16 hrs.	<hr/> 15 hrs.

Freshman—Group II.

<i>First Semester.</i>	<i>Second Semester.</i>
Animal Husbandry 1.... 3 hrs.	Agronomy 1b 3 hrs.
Dairy Husbandry 1a.... 3 "	Animal Husbandry 1.... 2 "
English 1a 5 "	Botany 1b 5 "
Horticulture 1a and 2a.. 5 "	Chemistry 4b or 6b..... 5 "
<hr/> 16 hrs.	<hr/> 15 hrs.

*The students during the Freshman and Sophomore years are divided into two groups. The subjects taken by each group are the same but are taken in a different order.

Sophomore—Group I.*First Semester.*

Agronomy 2a	5 hrs.
Organic Chemistry 5a...	3 "
Veterinary Science 1a...	3 "
Zoology 1a	5 "
<hr/>	
	16 hrs.

Second Semester.

Agricultural Chemistry	
1b	5 hrs.
Botany 3b	3 "
Horticulture 1b and 2b..	5 "
Veterinary Science 2b...	3 "
<hr/>	
	16 hrs.

Sophomore—Group II.*First Semester.*

Agronomy 2a	5 hrs.
Botany 3a	3 "
Chemistry 25a	5 "
Veterinary Science 1a...	3 "
<hr/>	
	16 hrs.

Second Semester.

Organic Chemistry 5b...	3 hrs.
Veterinary Science 2b...	3 "
Zoology 1b	5 "
Elective	5 "
<hr/>	
	16 hrs.

Junior.*First Semester.*

Agricultural Chemistry	
1a	5 hrs.
Animal Husbandry 100a.	3 "
Botany 100a or Veteri-	
nary Science 3a.....	3 "
Horticulture 100 or 102..	2 "
<hr/>	
	13 hrs.

Second Semester.

Agronomy 100b	5 hrs.
Animal Husbandry 101b.	3 "
Horticulture 100 or 102..	5 "
<hr/>	
	13 hrs.

Senior.*First Semester.*

Entomology 2a	3 hrs.
Geology 4a	3 "
Elective	9 "
<hr/>	
	15 hrs.

Second Semester.

Elective	15 hrs.
----------------	---------

C. FOUR YEAR CURRICULUM FOR WOMEN.

Agriculture and Home Economics.

The College of Agriculture offers an excellent course for women who may be interested in certain phases of Agriculture and in Home Economics. This curriculum includes a larger amount of instruction in plant studies and a less amount in such subjects as Animal Husbandry and Veterinary Science. The Degree of Bachelor of Science in Agriculture is given for the completion of 120 hours' work as indicated in the table below.

Curriculum for Women—Freshman.

<i>First Semester.</i>		<i>Second Semester.</i>	
Chemistry 4a or 6a.....	5 hrs.	Chemistry 25b	5 hrs.
English 1a	5 "	Home Economics 1b.....	5 "
Horticulture 1a and 4a ..	5 "	Botany 1b	5 "
	<hr/>		<hr/>
	15 hrs.		15 hrs.

Sophomore.

<i>First Semester.</i>		<i>Second Semester.</i>	
Chemistry 5a	3 hrs.	Botany 3b	3 hrs.
Agronomy 1a	3 "	Dairying 1b	3 "
Horticulture 8	2 "	Horticulture 8	2 "
English 2	2 "	English 2	2 "
Elective	5 "	Elective	5 "
	<hr/>		<hr/>
	15 hrs.		15 hrs.

Junior.

<i>First Semester.</i>		<i>Second Semester.</i>	
Home Economics 101a...	3 hrs.	Zoology 1b	5 hrs.
Elective	12 "	Elective	10 "
	<hr/>		<hr/>
	15 hrs.		15 hrs.

Senior.

<i>First Semester.</i>		<i>Second Semester.</i>	
Elective	15 hrs.	Elective	15 hrs.

The student will be required to select a major of 36 additional hours in any one of the groups designated below:

1. Plant group, including Agronomy, Botany, and Horticulture.
2. Dairy Husbandry Group, including Dairy Husbandry and Animal Husbandry.
3. Home Economics Group, including Home Economics and Design.

The remaining 26 hours may be selected from other courses in the College of Agriculture or in the College of Arts and Science.

D. FORESTRY.

Beginning September 1, 1911, the University offers a four year course in Forestry. It is planned to make this a high grade undergraduate course, which will thoroughly equip men for forestry work in the United States.

E. TWO YEAR WINTER COURSE.

A shorter course in Agriculture begins November 1 and continues for four months during the winter. It is the purpose of this course to provide an opportunity for those students who do not feel able to complete the regular four years' collegiate course, to secure the largest amount of practical instruction possible in the time. Any person over sixteen years of age may enter this course without examination. Write for special announcement.

F. FARMERS' SHORT COURSE.

During the second week in January each year the College offers a short course in Agriculture for farmers in connection with the Farmers' Week Program arranged in co-operation with the State Board of Agriculture. In this course special lectures and demonstrations in Soils and Farm Crops, Animal Husbandry, Dairying, Horticulture and Poultry Farming are given in the class rooms, laboratories and live stock judging pavilion belonging to the University. Farmers to the number of 1300 were enrolled for this course in 1911. Among the farmers attending there were representatives from fourteen states. This course will be given again from January 8-12, 1912.

COURSES IN DETAIL.

Courses designated by a number with the letter *a* attached thus: 2a, 120a, are given in the first semester only. Those designated by a number with the letter *b* attached, thus, 2b, 111b, are given in the second semester only. Those designated merely by a number are continuous courses, and are given both semesters. *Arabic numerals in parenthesis indicate the number of hours credit in a semester.* Courses numbered from 1 to 99 are for under-classmen, from 100 to 199 for upper-classmen, and from 200 to 299 for graduates. For schedule of days and hours, application should be made to the Registrar after August 1.

A full description of courses will be found in the annual catalogue.

AGRICULTURAL CHEMISTRY.

1a and 1b. Agricultural Chemistry. (5). Mr. TROWBRIDGE, Mr. MOULTON.

102. Advanced Agricultural Chemistry. Mr. TROWBRIDGE, Mr. MOULTON, Mr. HAIGH.

201. Seminary. (1). Mr. TROWBRIDGE.

202. Research in Agricultural Chemistry. Mr. TROWBRIDGE.

203a. Chemistry of Proteins. (3). Mr. TROWBRIDGE.

AGRONOMY.

1a and 1b. Grain Judging. (3). Mr. DEMAREE, Mr. HACKLEMAN.

2a. Crop Production. (5). Mr. DEMAREE, Mr. HACKLEMAN.

100b. Soil Physics and Soil Fertility. (5). Mr. MILLER, Mr. HUTCHISON.

101a. Farm Architecture. (3). Mr. MILLER, Mr. HENDRIX.

102b. Farm Engineering. (3). Mr. MILLER, Mr. HENDRIX.

103b. Soil Investigation. (3). Mr. MILLER.

104b. Field Crop Management. (2). Mr. MILLER, Mr. HUTCHISON.

105b. Special Grain Judging. (3). Mr. DEMAREE, Mr. HACKLEMAN.

106b. Cereal Breeding. (2). Mr. DEMAREE.

107b. Soil Management. (5). Mr. MILLER, Mr. HUTCHISON.

200. Seminary. (1). Mr. MILLER.

201. Special Investigations. Mr. MILLER.

ANIMAL HUSBANDRY.

1. Elementary Live Stock Judging. (5). Mr. ALLISON, Mr. WEAVER, Mr. HACKEDORN.

2a. Breeds of Live Stock. (3). Mr. ALLISON.

3b. Beef Production. (2). Mr. ALLISON.

4b. Sheep Production. (1). Mr. TROWBRIDGE.

5b. Pork Production. (1). Mr. WEAVER.

6b. Horse Production. (1). Mr. TROWBRIDGE.

7b. Advanced Live Stock Judging. (2). Mr. TROWBRIDGE.

100a. Animal Nutrition. (3). Mr. ALLISON.

101b. Animal Breeding. (3). Mr. TROWBRIDGE.

102b. Advanced Live Stock Judging. (3). Mr. TROWBRIDGE.

103b. Stock Farm Management. (2). Mr. TROWBRIDGE.

200. Seminary. (2). Mr. TROWBRIDGE, Mr. ALLISON, Mr. MUMFORD, Mr. WEAVER, Mr. HACKEDORN.

201. Experimental Feeding. Mr. TROWBRIDGE, Mr. ALLISON, Mr. MUMFORD.

202. Research in Animal Husbandry. Mr. MUMFORD, Mr. TROWBRIDGE, Mr. ALLISON.

203. Animal Breeding. Mr. MUMFORD, Mr. TROWBRIDGE.

204. Zoometry. Mr. TROWBRIDGE.

BOTANY.

1a and 1b. **General Botany.** (5). Mr. DURAND, Mr. REES, Miss KEENE.

3a and 3b. **General Bacteriology.** (3). Mr. REED, Mr. KUNKEL.

100a. **Plant Physiology.** (3). Mr. REED.

CHEMISTRY.

4a and 4b, or 6a and 6b. **General Inorganic Chemistry.** (5). Mr. SCHLUNDT, Mr. MORLAN.

25a and 25b. **Analytical Chemistry.** (5). Mr. BROWN, Mr. GIBSON.

5a and 5b. **Elementary Organic Chemistry.** (3). Mr. CALVERT.

DAIRY HUSBANDRY.

1a and 1b. **Elements of Dairying.** (3). Mr. RINKLE, Mr. WOBUS.

100b. **Milk Production.** (4). Mr. ECKLES, Mr. McNATT, Mr. WHITE.

101. **Dairy Bacteriology.** (2). Mr. ECKLES.

102a. **Cheese Making.** (2). Mr. RINKLE.

103a. **Judging Dairy Cattle.** (1). Mr. McNATT, Mr. WHITE.

105a. **Dairy Manufactures.** (2). Mr. RINKLE, Mr. WOBUS.

200. **Dairy Bacteriology.** Mr. ECKLES.

201. **Seminary.** Mr. ECKLES.

202. **Special Research with Dairy Cattle.** Mr. ECKLES.

203. **Research in Dairy Manufactures.** Mr. ECKLES, Mr. RINKLE.

ENGLISH.

1a and 1b. **English Composition and Rhetoric.** (5). Mr. MILLER.

ENTOMOLOGY.

- 1b. General Entomology. (3). Mr. HASEMAN.
- 2a. Economic Entomology. (3). Mr. HASEMAN.
- 3a. Elementary Morphology. (2). Mr. HASEMAN.
- 4b. Elementary Systematic Entomology. (2). Mr. HASEMAN.
- 100b. Advanced Economic Entomology and Insectary Methods.
(2). Mr. HASEMAN.
- 101a. Morphology, Histology, and Development of Insects.
(3). Mr. HASEMAN.
- 200. Research. Mr. HASEMAN.

FARM MANAGEMENT.

- 5a. Farm Accounts. (3). Mr. JOHNSON.
- 10b. Farm Organization. (3). Mr. DOANE.
- 12b. Farm Administration. (3). Mr. DOANE.
- 200. Seminary. Mr. DOANE, Mr. JOHNSON.
- 201. Investigation of Types of Farming. Mr. DOANE, Mr. JOHNSON.
- 202. Cost of Production Investigations. Mr. DOANE, Mr. JOHNSON.

GEOLOGY.

- 4a. Geology of Soils. (3). Mr. EMERSON.

HORTICULTURE.

- 1a and 1b. Plant Propagation. (2). Mr. HOWARD, Mr. CHANDLER.
- 2a and 2b. Vegetable Gardening. (3). Mr. WHITTEN.
- 3b. The Evolution of Cultivated Plants. (2). Mr. WHITTEN.

100. **Fruit Production.** (2). Mr. CHANDLER.
102. **Landscape Gardening.** (2). Mr. MAJOR.
103a and 103b. **Floriculture.** (1). Mr. MAJOR.
104b. **Principles of Forestry.** (3). Mr. HOWARD.
105. **Advanced Pomology.** Mr. WHITTEN.
106. **Olericulture.** Mr. WHITTEN.
107. **Ornamental Plants.** (1 to 3). Mr. MAJOR.
108a. **Elementary Landscape Designs.** (3). Mr. MAJOR.
200. **Special Investigation.** Mr. WHITTEN, Mr. HOWARD, Mr. CHANDLER, Mr. MAJOR.

AGRICULTURAL JOURNALISM.

- 10a and 10b. **Agricultural Journalism.** (3). Mr. ROSS.

METEOROLOGY.

- 1b. **Meteorology.** (1). Mr. REEDER.

RURAL SOCIOLOGY.

- 115a. **Rural Sociology.** (2). Mr. PARMELEE.

VETERINARY SCIENCE.

- 1a. **Veterinary Anatomy.** (3). Mr. BACKUS.
2b. **Veterinary Physiology.** (3). Mr. CONNAWAY, Mr. BACKUS.
3a. **Veterinary Medicine and Surgery.** (3). Mr. BACKUS.
104. **Topographic Veterinary Anatomy.** Mr. CONNAWAY.
105b. **Veterinary Medicine.** (3). Mr. BACKUS.
106. **Veterinary Surgery and Obstetrics.** (3). Mr. BACKUS.
107. **Contagious, Infectious and Parasitic Diseases of Farm Animals.** (3). Mr. CONNAWAY.
209. **Investigation.** Mr. CONNAWAY.

ZOOLOGY.

- 1a and 1b. **General Zoology.** (5). Mr. CURTIS.

STUDENT ACTIVITIES.

The agricultural students maintain numerous thriving organizations founded for the purpose of promoting various important phases of college life.

The Agricultural Club.

This union of all the agricultural students in the University has been a power for good in promoting college spirit and loyalty to the agricultural department. This organization has worked unselfishly for the best good of all and is worthy of the active support of every agricultural student.

The Missouri Agricultural College Farmer.

The Agricultural College paper is published monthly and its excellent management deserves great credit for the uniformly high character of this publication. The purpose of the paper is to present reliable articles on agricultural subjects and to bring to the attention of the farmers and others the work of the College and Station. The editors and managers are elected annually by the Agricultural Club.

The County Fair.

Once a year in April the agricultural students give a county fair. This event calls for the display of considerable ability in organization and is useful in stimulating the ingenuity of individual students. A live stock, agricultural, and horticultural display divides attention with more recreative features provided by the students.

Colman Literary Society.

Public speaking is encouraged in this organization. The membership is limited and the work is of a high order of excellence.

The 1913 Debating Society.

This society was formed to train men in public debating and it has been of great value to the students who participate. Members of the faculty assist in directing the work of this club.

The Grange.

The interests and responsibilities of the Agricultural student do not end with his immediate surroundings in College. He justly

feels that he owes a duty to the farming class to which he belongs. In the Grange faculty and students meet and discuss the broader phases of agriculture which are of interest to them as farmers rather than students.

Alpha Zeta and Delta Theta Sigma.

These are honorary societies whose membership is limited to students who attain high intellectual rank as students. It is considered an honor to be elected to membership in these associations.

Young Men's Christian Association.

The agricultural students have always taken an active interest in the Young Men's Christian Association of the University. This association owns a \$50,000.00 stone building devoted to the religious and social life of the students of the University. In the building are rooms for the accommodation of 80 students; in addition there are quarters for the secretary and other officers of the association; an auditorium for meetings, and various committee rooms used by the student organizations. New students are advised to confer with the secretary of the Young Men's Christian Association in reference to finding suitable places to board and room. Students desiring employment should also consult the man in charge of this work in the Y. M. C. A. Building.

FACILITIES FOR INSTRUCTION.

Buildings.

Agricultural Building. A two story stone structure 266 feet long with a high basement and an auditorium seating 500 persons. More than 1,000 students may be accommodated at one time in the class rooms and laboratories. The building includes: Offices of the Dean and Director; the State Board of Agriculture, including the State Highway Commissioner and the State Veterinarian; the Drug and Food Commissioner; and the State Poultry Board.

The Departments of Agronomy, Animal Husbandry, Agricultural Chemistry and the Soil Survey, and the General Agricultural Library are located in this building.

Horticultural Building. A stone building 120x54 feet, two stories and a well-lighted basement with plant house and insectary each 16x50 feet, contains class-rooms, laboratories, offices and preparation rooms for Horticulture, Botany and Entomology.

Dairy Building. A stone building 45x150 feet, two stories, with cheese curing room in basement, contains large rooms for creamery

manufactures, cheese-making room, dairy work, milk-testing laboratory, offices, class-rooms, etc.

Barns, Shelters, and Live Stock Judging Pavilion. The Department of Animal Husbandry is equipped with a modern cattle barn providing accommodations for one hundred head of cattle. The first story is built of stone with granitoid floors throughout. In connection with this barn is a two hundred and fifty ton stone silo. The cattle feeding shed, 300 feet long by 30 feet wide, divided into 15 lots for experimental cattle feeding and other investigational work, is utilized for demonstration and instructional purposes. A modern hog barn with concrete floors and iron pen divisions equipped with dipping tank and other necessary appliances for skillful swine husbandry is of great value as a part of the equipment. The sheep are housed in a barn devoted entirely to the care and handling of the leading pure breeds of sheep. The stock judging pavilion is a well lighted and heated room provided with seats and is used for live stock judging instruction.

Laboratories.

Farm Machinery Laboratory. A commodious building of stone, containing facilities and material for instruction in farm implements and machinery. The building is supplied with power for the purpose of operating the various pieces of machinery, and it is equipped with all the modern makes of farm implements. The doors will admit implements as large as threshers, and the floor space is ample for thorough demonstration work. The latest types of all the leading lines of farm machines, including steam threshers, self-binders, mowers, corn planters, hay loaders, manure spreaders, gasoline engines, etc., are available for use and for the purpose of instruction.

Laboratories for Botany. General laboratories for physiological and structural botany, and special laboratories and culture rooms for phases of the physiological, mycological, and bacteriological work are located in Horticultural building. The laboratories are equipped with compound and dissecting microscopes, microtomes, steam and steam pressure sterilizers, incubators, balances, precision apparatus, and necessary glassware. The herbarium amply illustrates the local flora, and a well chosen departmental library is accessible to all students.

Laboratories for Agricultural Chemistry. The laboratory for undergraduate instruction in Agricultural Chemistry is located in the Agricultural building. The laboratory is well equipped for the study of Quantitative methods in Agricultural Chemical Analysis. The Chemical Laboratories of the Experiment Station are located in the Dairy building, and provide ample facilities for instruction

for advanced students and for special research in animal nutrition, in analyses of fertilizers, foods, feeding stuffs, including detection of adulterations, artificial coloring, etc. Special opportunity is offered for a study of provisional and official methods of the Association of Official Agricultural Chemists.

Laboratories for Entomology. The laboratories are located in the Horticultural building, and have in connection a new insectary. The laboratories are supplied with microscopes, dissecting instruments, microtomes, breeding cages, aquaria, spraying machines, insecticides and re-agents. The museum contains collections of the more important injurious, and beneficial insects, arranged to illustrate their habits of work and life history. There are several thousand species of adult insects from all orders correctly classified and labeled. Twelve current periodicals on Entomology are regularly received.

Laboratories for Horticulture. The horticultural laboratories consist of about 3,300 square feet of forcing-house space under glass, which gives opportunity for work in plant propagation and forcing-house methods. In the basement of the Horticultural building there is also a laboratory for the propagation of dormant plants, and adjacent thereto a storage room for storing the cuttings, bulbs, stocks, scions, etc. This gives opportunity for general winter nursery work. The department also has two smaller laboratories where advanced students can carry on studies in soil examinations and in an investigation of special horticultural problems regarding plant growth. The out-of-door collection of plants on the Horticultural grounds comprises about one thousand varieties of fruits, together with a good collection of ornamental shrubs and trees, which furnish facilities for field laboratory work, such as methods of planting, pruning, cultivating, spraying, etc.

Laboratories for Agronomy. The laboratories for instructional and investigational work in Agronomy are located in the New Agricultural building. The soil laboratories contain one large instructional laboratory for the required laboratory work in this subject, together with various additional laboratories for special students and for research work. The farm crops laboratories include a large judging and exhibition room for instructional work in judging, grading and handling of grains, a room for storing demonstrational material, a germinating room for the testing of farm seeds and special research laboratories for advanced students and for Experimental Station work.

Laboratories for Dairy Husbandry. The facilities for Dairy manufactures including the creamery room, provided with the usual

equipment found in the commercial creameries, such as power separators and churns, pasteurizers, sterilizers and butter printers; a cheese room provided with vats, cheese presses and basement curing room; farm dairy machinery, including leading makes of cream separators, milk testing apparatus and churns; artificial refrigerating plant and cold storage rooms; a laboratory for research work carried on in co-operation with the Dairy Division of the U. S. Department of Agriculture; and a laboratory for instruction and investigation in Dairy Bacteriology.

Some 500 to 1000 pounds of butter are manufactured each week throughout the year from the milk produced by the College herd, and that purchased from 30 to 40 farmers.

Live Stock Equipment.

Dairy Herd. The Dairy Department maintains a herd of about 70 head of dairy cattle of the Ayrshire, Jersey, Holstein and dairy Shorthorn breeds. Complete milk and butter records are kept of each individual cow in the herd and the student is given instruction in everything that pertains to the breeding, care and management of the highest type of dairy cattle. Several of the cows in this herd hold milk and butter records which rank them among the best specimens of dairy cattle ever produced.

The Department of Animal Husbandry owns breeding herds of Shorthorn cattle and Hereford cattle and specimens of other breeds. The live-stock judging instruction is further facilitated by the use of pure bred and grade steers, fitted for the fat stock shows. Many of these steers have been shown at the leading live stock shows of the middle west and have won many premiums. Since 1907, the fat steers exhibited by the Department of Animal Husbandry have won more than 500 prizes at the Missouri State Fair, The American Royal Live Stock Show, the Interstate Live Stock Show, and the Chicago International Live Stock Exhibition.

In the Swine Department high class breeding animals of the Poland China, Berkshire, and Duroc Jersey breeds are maintained. Among breeds of sheep the Shropshire, Rambouillet, National Delaine, Hampshire and South Down breeds are represented. A large number of cattle, hogs and sheep are purchased from time to time for investigation in feeding.

The Department also owns a number of registered Percheron mares. This entire equipment is in constant use for the instruction of students in the judging, feeding and management of all classes of live stock.

Libraries.

The Agricultural Library has been greatly increased during the past few years. A large number of valuable books on Agronomy, Horticulture, Dairy Husbandry and Animal Husbandry have been added, as well as scientific publications bearing more or less directly upon the subject of technical Agriculture. Valuable files of Agricultural periodicals are bound and kept complete to date. These files include literature in both French and German, as well as in English. It is believed that the library for Agriculture is now one of the best collections in the West.

Practical Excursions.

Visits to successful farms and breeding establishments are made under the guidance of an instructor for the study of special phases of Agriculture. The principles taught in the class-room are thus observed in their application to agricultural operations on well-managed farms.

FELLOWSHIPS AND SCHOLARSHIPS.

The University offers six Research Fellowships to graduate students in the College of Agriculture. These pay \$250.00 each annually and are awarded to students who can enter the graduate department. For more detailed information reference is made to the Graduate announcement.

During the session 1911-12 there will be available to undergraduate students in Agriculture, five Armour Scholarships each of which pays \$250.00 in cash. These were won by the Live Stock Judging team at the Chicago International Live Stock Exposition in 1910. It is Mr. Armour's wish that they be awarded to needy students who are paying their own way through the College.

In the Short Winter Course fifty-nine scholarships are available. The Frisco Railroad offers forty-five \$100 scholarships to young men in the counties through which the Frisco Railroad passes who win first prize at the annual county corn show. The Santa Fe Railroad similarly offers twelve \$50 scholarships, one in each county through which the Santa Fe Railroad passes.

The Missouri State Board of Agriculture offers two scholarships of \$50 each, one to the winner of the Live Stock Judging contest and one to the winner of the Corn Judging contest held in connection with the Missouri State Fair in 1911. It is probable that other scholarships will be announced later.

SOME POSITIONS HELD BY GRADUATES OF THE COLLEGE
OF AGRICULTURE.

President of the Kansas Agricultural College.
Chief of the National Bureau of Plant Industry, U. S. D. A.
Director of the Louisiana Experiment Station.
Director of the Arkansas Experiment Station.
Dean of the Louisiana College of Agriculture.
Agriculturist, National Bureau of Plant Industry.
Chief in Nutrition, Ohio Experiment Station.
Director in Charge of Experiment Station, Porto Rico.
Dean of the Arkansas College of Agriculture.
Department of Agriculture, U. S. Office of Farm Management.
Pomologist in charge of Viticultural Investigation, U. S. Department of Agriculture.
Agricultural Expert at the National Tribunal, Cairo, Egypt.
Acting Director, Bureau of Agriculture, Philippine Islands.
Professor of Rural Education, State College, Pennsylvania.
Professor of Animal Husbandry, University of Alabama.
Professor of Dairy Husbandry, University of Vermont.
Professor of Animal Husbandry, State College, Pennsylvania.
Professor of Animal Husbandry, University of Tennessee.
Professor of Horticulture, University of Missouri.
Professor of Agricultural Chemistry, Arkansas.
Professor of Veterinary Science, University of Missouri.
Manager of Harbor Hill Farms, Long Island, New York.
Professor of Dairying, University of Utah.
Professor of Agriculture, Illinois College, Jacksonville.
Professor of Botany, State University of Virginia.
Professor of Dairy Husbandry, Porto Rico.
Professor of Botany, State College of New Hampshire.
Formerly Professor of Dairy Husbandry, University of Tennessee.
Now Manager of a Missouri dairy farm.
Professor of Agricultural Chemistry, University of Oklahoma.
Professor of Agronomy, University of Delaware.
Expert in Bureau of Plant Industry, U. S. D. A.
Professor of Agriculture, State Normal, Maryville.
Professor of Agriculture, State Normal, Kirksville.
Professor of Farm Crops, Agricultural Experiment Station, Ames, Iowa.
Professor of Dairying, Kansas State Agricultural College.
Professor of Horticulture and Botany, Oklahoma Experiment Station, Stillwater, Oklahoma.

Assistant in Department of Nautical Instruments, Naval Observatory.

Professor of Comparative Medicine, West Raleigh, North Carolina.

Head of the Agronomy Department, University of Idaho.

Superintendent of Agricultural Education for the Indians.

Director of Agricultural Education for the Argentine.

Head of the Dairy and Animal Pathology Departments, Georgia Experiment Station.

Member of Bureau of Agriculture, Philippines.

Assistant Professor of Horticulture, Arkansas.

Assistant Professor of Agronomy, North Dakota.

Assistant Professor of Dairy Husbandry, Purdue University, Indiana.

Assistant Professor of Agronomy, Missouri Agricultural College.

Assistant Professor of Animal Husbandry, Kansas Agricultural College.

Assistant Professor of Agronomy, University of Maine.

Assistant Professor of Animal Husbandry, Montana State College of Agriculture.

Assistant Professor of Bacteriology, State Agricultural College, Ames, Iowa.

Dairyman, Agricultural Department, University of Idaho.

Junior Dairyman, U. S. Department of Agriculture.

Chemist in Charge of Citrus Experiment Station, Riverside, California.

Assistant State Entomologist in New York.

Instructor in Agronomy, University of California.

Instructor in Animal Husbandry and Veterinary Science, Arizona.

Instructor in Dairy Bacteriology, Iowa State College.

Instructor in Animal Husbandry, Kansas State Agricultural College.

Instructor in Organic Chemistry and Veterinary Science, Kansas City Veterinary College.

Instructor in Plant Pathology, Cornell University, Ithaca, New York.

Instructor in Horticulture, University of Washington.

Instructor in Horticulture, University of Nebraska.

Instructor in Grain Crops, Ames, Iowa.

Instructor in Horticulture, Ames, Iowa.

Instructor in Botany, Pennsylvania State College.

Experimentalist, Animal Husbandry, Iowa State College, Ames, Iowa.

Agriculturist, State School of Agriculture, Lawton, Oklahoma.

Superintendent, Missouri Training School Farm, Boonville, Missouri.

Assistant in Horticulture, University of Virginia.

Assistant in Animal Husbandry, Kansas.

Assistant in Botany, Cornell University.
Assistant in Animal Husbandry, Purdue University.
Assistant Editor of a farm paper, Oregon.
Assistant Chemist in Charge of Fertilizer Experiments, Arkansas.
Assistant in Plant Physiology, Cornell University, New York.
Assistant in Botany, State College, Pennsylvania.
Assistant in Plant Physiology, Florida.
Manager of 2,000 acres in Northwest Missouri.
Assistant in Truck Farming, Truck Experiment Station, Norfolk,
Virginia.
Teacher in Wentworth Military School, Lexington, Missouri.
Associate Editor of the Breeders Special, Kansas City, Missouri.
Manager of a large fruit farm in Idaho.
Manager of large landed interests in Ray County, Missouri.
Manager of 1,000 acre farm at Concordia, Missouri.
Lumber Interest, Greenville, Mississippi.
Lawyer, St. Louis, Missouri.
Veterinary Inspector, St. Louis, Missouri.
Banker, Memphis, Missouri.
Veterinary Surgeon, Novelty, Missouri.
Manager of a 500 acre farm, Crescent, Missouri.
Ranch owner, California.
Manager of a 1,000 acre stock farm, Centralia, Boone County, Mis-
souri.
County Commissioner of Schools, Missouri.
Editor Agricultural Paper, St. Louis, Missouri.
Chemist, Coke Works, Pennsylvania.
With Dairy Extension, U. S. D. A.
Manager of a large stock farm, Nemaha, Nebraska.
Manager of the dairy department of the Clarence Mackey Estates,
Long Island.
Manager of 2,000 acre stock and grain farm, Warrensburg, Mis-
souri.
Manager of a large stock and grain farm in Lafayette County,
Missouri.
Dairyman, Wisconsin.
Dairy Farmer, Missouri.
Farm Owner, Missouri.
Farm Manager, Texas.
Ranch Superintendent, North Dakota.
Large Fruit Farmer, Arkansas.
Dairyman, Missouri.
Farmer, Illinois.

Farmer, Missouri.
Tenant Farmer, Missouri.
Manager Hereford Ranch, Missouri.
Farmer, Tennessee.
Farmer, Georgia.
Farmer, Oregon.
Farmer, Missouri.
Farmer, Oklahoma.
Farmer, Ohio.

In the University of Missouri local graduates are holding the following positions:

Professor of Veterinary Science.
Professor of Horticulture.
Assistant Professor of Farm Management.
In Charge of Department of Agronomy.
Instructor in Horticulture.
Instructor in Dairy Husbandry.
Assistant in Agricultural Chemistry.
Assistant in Dairy Husbandry.
Assistant in Animal Husbandry.
Instructor in Agricultural Chemistry.
Assistant in Veterinary Science.
Assistant to Dean and Director.

OTHER ACTIVITIES OF THE COLLEGE OF AGRICULTURE.

TEACHING AGRICULTURE OUT IN THE STATE.

Six men from the College of Agriculture in thirteen days' time gave instruction in Agriculture to 93,800 people. This was accomplished by means of special trains furnished by the Frisco, Burlington, and Wabash Railroads.

Instructors from the College taught Agriculture to 2,300 persons in night schools at St. Louis and at Kansas City.

Twenty-one teachers from the College of Agriculture made public addresses on agricultural subjects during the past year in each of the 114 counties of Missouri. The total number of addresses made at these meetings was 460. Over 100,000 farmers attended these meetings.

The College uses this means to explain the results of the agricultural experiments made by the Experiment Station and to demonstrate modern methods of agriculture.

JUDGING LIVE STOCK AT COUNTY FAIRS.

The Agricultural College supplied forty-two county fairs with expert judges of live stock in 1910. These expert judges were trained for this work by the Animal Husbandry Department. It required ninety-five days and the services of twelve men to supply this demand for judges.

The total number of animals examined and placed for the award of prizes was 6,027.

There were 304,000 people attending these fairs.

By this means the College is using the most efficient and practical method of educating stock men and farmers how to select and develop the most profitable types of animals.

TEACHING AGRICULTURE IN THE RURAL SCHOOLS.

The College of Agriculture has supervised directly the agricultural instruction of 741 pupils in the Rural Schools of Missouri during the Session of 1909-10. The University is sending a competent instructor to the rural school and there aiding the rural school teacher in teaching Agriculture efficiently.

More than thirty thousand bulletins were published especially for teachers in Rural Schools during the year on the subjects of "Ten Lessons on Indian Corn," "The Soil," and "The Horse." In addition large numbers of other Experiment Station and College Bulletins have been sent to teachers and pupils.

In the development of this work the College of Agriculture has visited thirty-two counties of Missouri. The instructor in Rural Education has delivered forty-one public addresses to 9,265 pupils.

In the regular University Summer School rural school teachers are given instruction in Agronomy, Animal Husbandry, and Horticulture.

OTHER PHASES OF EXTENSION WORK IN AGRICULTURE.

The College of Agriculture does not confine the benefits of its instruction to those students only who are permitted to enroll in the regular courses at Columbia. In many ways the College is carrying the results of its practical experiments directly to the people of the State.

The Farmers' Short Course. During the Farmers' Week Convention at Columbia the College of Agriculture offers each year a Short Course for farmers. This continues for one week and 1300 farmers were enrolled in 1910.

Teaching Agriculture to Teachers. Each summer from June to August, the College of Agriculture offers special courses to teachers with a view to preparing them to teach Agriculture in the rural and high schools of Missouri. More than 150 teachers were enrolled in these courses in 1910.

Farmers' Institutes. In co-operation with the State Board of Agriculture, men from the Agricultural College have delivered 460 public addresses at Farmers' Institutes and other Agricultural meetings in Missouri.

Farm Management Demonstration Meetings. The College of Agriculture in co-operation with the United States Department of Agriculture has inaugurated a plan of holding Farm Management Demonstration meetings on the farms of the managers of the demonstration farms which are conducted under the direction of the Department of Farm Management.

CORRESPONDENCE.

In one year's time men in the College of Agriculture have received and answered 40,000 letters and post cards. In most cases personal replies have been made to definite questions relating to agricultural practice. The correspondence of men in the College of Agriculture has doubled during the past twelve months.

THE TRAVELING DAIRY INSTRUCTOR.

The College of Agriculture is helping in the development of the dairy industry of the State. It maintains a traveling Dairy Instructor whose whole time is devoted to organizing and instructing Dairy Associations and individual dairy farmers in Missouri.

BOYS' CORN GROWING CONTEST.

In 1910 there were 3000 Missouri boys and young men enrolled in a corn growing contest under the direction of the College of Agriculture. Full directions for selecting, planting, cultivating and harvesting are furnished these men by the College of Agriculture. When the crop is harvested the corn is exhibited at a county corn show and judged by men from the College or Board of Agriculture. In counties located in South Missouri the winners received a \$100 scholarship in the Short Winter Course in Agriculture offered by

the Frisco Railroad. In twelve Missouri counties through which the Santa Fe Railroad runs a scholarship of \$50 was given to young men who win in the county corn show.

BOYS' SHORT COURSE.

The College offers a special course of one week to farm boys in grain and Live Stock Judging. In 1910, thirty-one boys from twelve to sixteen years of age were thus given the benefits of instruction in better methods of farming.

THE EXPERIMENT STATION.

The Experiment Station is a Division of the College of Agriculture. Its function is original investigation for the benefit of agriculture.

The establishment of the Experiment Station as a Division of the College of Agriculture has had a profound influence upon the instructional activities of the institution. It has emphasized the fundamental importance of original research and the investigations in progress have furnished the best sort of material for demonstrations. Advanced students are utilized as much as possible for assisting in experimental work and are thus enabled to acquire valuable practical experience. Some of the results of the work of the Experiment Station are mentioned below:

RESULTS OF THE WORK OF THE EXPERIMENT STATION.

DISTRIBUTION OF HOG CHOLERA SERUM.

The Experiment Station inoculated 40,000 hogs during the past year. Eighty-five per cent of these hogs were saved. At a conservative estimate, the work of the College has added \$500,000 in cash to the resources of Missouri in this item alone in one year.

The Veterinary Department in charge of Dr. J. W. Connaway is now inoculating 7500 hogs a month. The Station is not yet able to supply the demand for hog cholera serum. A new laboratory used exclusively for making this serum has recently been completed to meet this rapidly increasing demand.

The estimated annual loss resulting from Hog Cholera in Missouri is \$1,500,000. It is confidently expected that the work of the College will in time stamp out or efficiently check this dread scourge and by so doing add this large sum annually to the wealth of the State.

RESULTS ON OUTLYING EXPERIMENT FIELDS.

Soil Experiments on the Station's field at Monroe City in Northeast Missouri have increased the yield of wheat by sixteen bushels per acre with a corresponding increase in the net profit.

On the Soil Experiment field at Lamar in Southwest Missouri it has been shown that corn may be increased from twenty bushels to forty-five bushels per acre. In the same locality wheat has been increased twelve bushels per acre.

Good Soil management on one of the Station's outlying experiment fields located at Victoria increased the clover yield from one-half ton to two tons per acre. The increased net profit was \$6.00 per acre.

In Christian County corn yields have been increased sixteen and a half bushels per acre and clover one ton on each acre by the application of results secured by the Missouri Experiment Station on its Billings field.

RESULTS OF SOIL SURVEY.

As a result of the investigations relating to the soil survey of Missouri, there has already been accomplished a general preliminary soil survey of the whole State. A more careful survey of the Ozark region and of Northeast Missouri has been made. A thorough and detailed agricultural and soil survey of the following counties in Missouri has been completed: Atchison, Audrain, Barton, Bates, Cape Girardeau, Cooper, Crawford, Cedar, De Kalb, Howell, Jackson, Marion, Pemiscot, Putnam, Saline, St. Charles, Scotland, Shelby, Sullivan, Webster.

The results of these investigations have been published in bulletin form, in part by the United States Department of Agriculture, co-operating with this Experiment Station and in part by the Missouri Experiment Station.

Enough has already been learned of the crop adaptation of various soil types to suggest the kind of crops which seem to thrive best on particular soil areas.

RESULTS IN OTHER DEPARTMENTS.

Peach trees pruned according to the methods discovered by this College have been made to produce two additional crops in eight years. If this method were adopted throughout the entire State the increased wealth in eight years would amount to over twelve million dollars.

Last year the Jonathan apple orchard on the Horticultural grounds which was sprayed yielded over \$160 per acre, while unsprayed Jonathan orchards in the neighborhood had almost no marketable fruit.

As a demonstration experiment, the College of Agriculture last year sprayed one acre of Jonathan apples in a 140-acre commercial apple orchard near Columbia. This sprayed acre produced more marketable apples than the remaining 139 acres which were not sprayed.

One-eighth of an acre of asparagus on the Horticultural grounds has produced an average of \$80.00 annually for the past five years: This is at the rate of \$600 per acre for each year.

A pure bred Holstein Friesian cow, "Missouri Chief Josephine," born on the College Farm has made several world's records during the year, as follows:

In four months, 11,536.1 pounds milk.

In six months, 17,008 pounds milk.

In eight months, 21,698 pounds milk.

In ten months, 24,530 pounds milk.

In eleven months, 25,650 pounds milk.

These are the highest records known for the periods named.

A three-year-old Jersey cow, "Pedro's Estella," bred on the College Farm, produced seven hundred and twelve pounds of butter in one year. This was the world's record for a three-year-old Jersey cow at the time the record was made.

Five Jersey cows owned by the Experiment Station have each produced more than seven hundred pounds of butter in one year. Only twenty Jersey cows in the history of the world had produced over seven hundred pounds of butter each in one year when these records were made.

RESULTS FROM CO-OPERATIVE EXPERIMENTS.

The average yield of corn in Missouri in 1909 was 27.4 bushels per acre. The average yield of corn on the farms of twenty-five farmers, co-operating with the Agricultural Experiment Station in the same year was 48 bushels per acre. Each of these co-operators has become a practiced demonstrator of the successful methods of corn growing which have been recommended by the Experiment Station.

AVAILABLE PUBLICATIONS OF THE EXPERIMENT STATION.

The results of completed experiments conducted at the Station are published in bulletin form and mailed free to farmers. The following bulletins are now available for distribution.

- Bulletin 54. The Strawberry False Worm.
The Strawberry Leaf-Roller.
- Bulletin 55. Pruning Peach Trees.
- Bulletin 62. The Hessian Fly in Missouri.
- Bulletin 68. A Test of Tin Can Separator.
A Test of Fly Repellants.
- Bulletin 71. The Fruit Tree Leaf-Roller.
- Bulletin 81. Specific Effects of Rations on the Development of Swine.
- Bulletin 83. Soil Experiments on the Upland Loam of Southeast Missouri.
- Bulletin 84. Soil Experiments on the Prairie Silt Loam of Southwest Missouri.
- Bulletin 87. Co-operative Variety Tests of Corn.
Variety Tests of Corn at Columbia.
- Bulletin 88. Soil Management in the Ozark Region.
- Bulletin 90. Fattening Cattle on Blue Grass Pasture.
- Bulletin 91. Inspection of Commercial Fertilizers.
- Bulletin 94. Factors Affecting the Per Cent of Fat in Cream from Farm Separators.
- Bulletin 95. Pork Production With Forage Crops.
- Bulletin 96. Report of the Director.
- Circular 38. The Principles of Maintaining Soil Fertility.
- Circular 41. Directions for Testing Milk on the Farm.
- Circular 42. The Seeding of Clovers and Grasses.
- Circular 44. Feeding for Milk Production.
- Circular 46. Factors Influencing the Yield of Oats.
- Circular 47. Raising Calves on Skim-Milk.

Bulletins of the Experiment Station may be had by writing to the Director of the Experiment Station, Columbia, Missouri.

WHERE TO WRITE FOR INFORMATION.

For further information in regard to the College of Agriculture
address

F. B. MUMFORD,
Dean of the College of Agriculture,
University of Missouri,
Columbia, Missouri.

For catalogue of the University and for special circulars of the
Graduate School, College of Arts and Science, College of Agriculture,
School of Education, School of Law, School of Medicine, School of
Engineering, and School of Journalism, address

Mailing Clerk,
University of Missouri,
Columbia, Missouri.

THE
UNIVERSITY OF MISSOURI
BULLETIN.

Volume 12, General Series 1911.

Number 1, January	Summer Session
Number 2, February	Graduate School
Number 3, March	School of Education
Number 4, April	School of Law
Number 5, May	Catalogue
Number 6, June	School of Medicine
Number 7, July	College of Arts and Science
Number 8, August	School of Journalism
Number 9, September	School of Engineering
Number 10, October	College of Agriculture (Regular Session.)
Number 11, November	College of Agriculture (Short Course.)
Number 12, December	Second Semester Courses

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THE UNIVERSITY OF MISSOURI BULLETIN

FEB

1911

GENERAL ~~SERIES~~ UNIVERSITY OF ILLINOIS

VOLUME 12 NUMBER 11

PRESIDENT'S OFFICE

ANNOUNCEMENT
OF THE
TWO-YEAR WINTER COURSE
COLLEGE OF AGRICULTURE
1911-12



UNIVERSITY OF MISSOURI
COLUMBIA, MISSOURI
November, 1911

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UNIVERSITY OF ILLINOIS

GENERAL SERIES

VOLUME 12 NUMBER II

PRINTED BY OFF. R.



THE AGRICULTURAL BUILDING

ANNOUNCEMENT OF THE TWO-YEAR WINTER COURSE COLLEGE OF AGRICULTURE

1911-12

UNIVERSITY OF MISSOURI
COLUMBIA, MISSOURI
November, 1911

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TWO-YEAR WINTER COURSE CALENDAR.

First Term.

1911—October 31, November 1, Tuesday and Wednesday..Registration
November 2, Thursday, 8 a. m.

Class Work in All Departments Begins

November 30, Thursday, Thanksgiving Day.....Holiday

December 20, Wednesday, at 2 p. m. to } Final Examinations

December 22, Friday, at 12 m..... }

December 22, Friday, at 12 m. to }Christmas Holidays

1912—January 3, Wednesday, at 9 a. m. }

Second Term.

January 3, 4, Wednesday and Thursday.....Registration

January 5, Friday, 8 a. m.

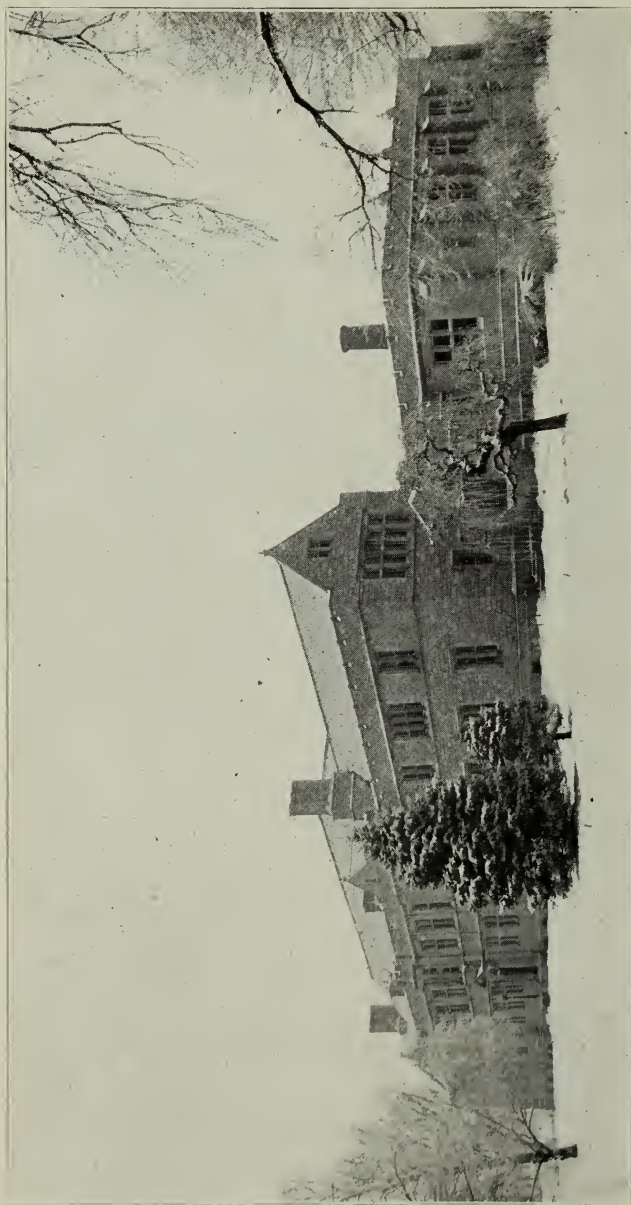
Class Work in All Departments Begins

January 8, Monday, 7:30 p. m. to } ..Farmer's Short Course

January 12, Friday, 4:30 p. m. }

February 20, Tuesday, at 2 p m. to }Final Examinations

February 22, Thursday at 1 p. m. }



THE MAIN AGRICULTURAL BUILDING.

A two-story stone structure 266 feet long with a high basement and an auditorium seating 500 persons. More than 1000 students may be accommodated at one time in the class rooms and laboratories.

THE TWO-YEAR WINTER COURSE IN AGRICULTURE.

(Short Course.)

The Two-Year Winter Course in Agriculture is especially arranged to meet the needs of young men who desire a thorough training in up-to-date farm methods. It fits men for practical work on the farm. In its four winter terms of seven weeks each, it teaches facts and methods that it has taken our most enterprising farmers and experiment stations a generation or more to find out by costly experience. In other words, it gives the young man, at the very beginning of his life work, the knowledge, that, in the ordinary routine of farming, would require all the best years of his life to find out for himself.

The Short Course shows its students by actual demonstration how to make a farm yield larger returns, and at the same time keep up its fertility. More than this, it creates enthusiasm and interest in farm life and helps its students to become business men—men of influence in their community—and not mere tillers of the soil. Its purpose is not to encourage men to work less, but rather to make every hour's work count to the end that the enormous wastes which are now so evident in all branches of agriculture—wastes which would bankrupt any other, less fruitful, industry—may cease.

IS IT WORTH WHILE?

Owners of large farms and country estates who raise good live stock, grow choice grains and practice systematic rotation of farm crops have not been slow to recognize the increased ability of young men who have taken the work of the Two-Year Winter Course in Agriculture, and are always on the alert to secure their services at wages materially higher than are paid to untrained men. Year by year, too, the College receives an increasing number of inquiries for its students to become farm managers and to assist in various agricultural enterprises that are only indirectly concerned with the farm.

Any graduate of the Short Course who has had sufficient experience in practical farming may expect to secure a position of this nature. Thus the time and money spent in taking the course becomes, not an expense, but an actual dividend-paying investment, whether the student returns to his own or his father's farm, or goes out to offer his services to others. No enterprising young man who intends to follow farming as a life's work can afford to neglect the opportunity offered by the Short Winter Course in Agriculture.

GIVEN DURING WINTER MONTHS.

The Two-Year Winter Course is given during the winter months when farmers and their sons can leave their homes with the least inconvenience. The course includes two winters' work beginning each year on November 1st and continuing for four months. Each winter comprises two terms of seven weeks, and students may enter

ENROLLMENT IN TWO-YEAR WINTER COURSE IN AGRICULTURE.

Year	No. of Student
1896	24
1897	33
1898	38
1899	18
1900	44
1901	36
1902	34
1903	48
1904	72
1905	63
1906	69
1907	77
1908	109
1909	148
1909-10	158
1910-11	304

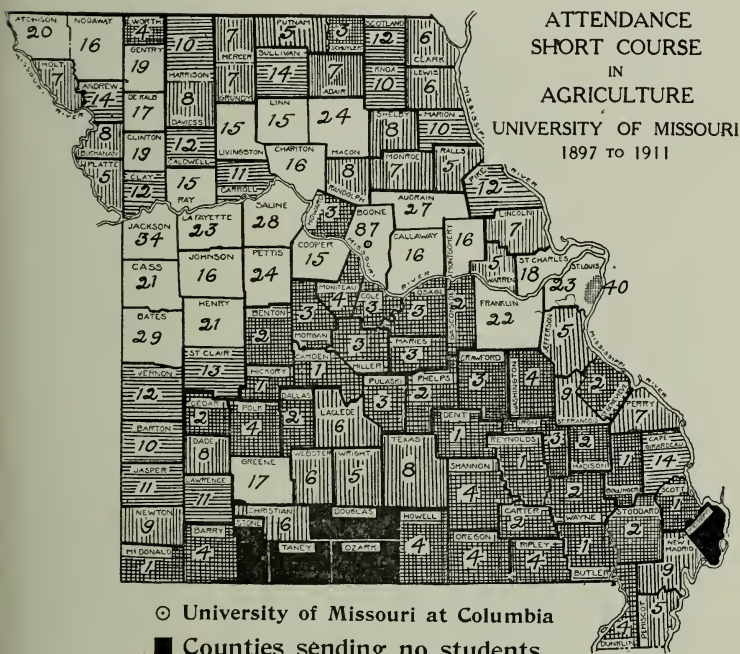
Since its organization in 1896, one thousand two hundred and seventy-five students have attended the Short Course in Agriculture. Of this number nearly one-quarter were enrolled in the winter course in 1910-11. Until 1909 each winter's work consisted of but one term of seven weeks.

at the beginning of either term. There is an advantage, however, in entering on November 1st and following right through the entire course of study as outlined on page 9. However, it is much better to begin on January 3rd, than to enter a week or two late in the first term.

Studies begun in one term are completed in that term and are not carried over into the next. This makes each term of seven weeks a unit in itself, and students who so desire may enter on November 1st or January 3rd, remain for seven weeks only, and still complete their work as far as they go.

WHO MAY ENTER?

Students applying for admission to the course should be at least sixteen years of age and have the equivalent of a common school education. No entrance examinations are required. Experience in farm work will prove of great value in mastering the details of the subjects presented for study, and men of mature years who own or operate farms will find much of value to them in the Two-Year Winter Course.



Young men who have had a four-year high school or college training are advised to enter the regular four-year course in Agriculture, but for those who cannot do this the Two-Year Winter Course offers ample field for hard study and useful training.

FEES AND EXPENSES.

Tuition in the Two-Year Winter Course is free. An incidental fee of \$5.00 is charged to all students and a small laboratory fee of \$1.00 in Veterinary Science, Dairy Husbandry, and Shop Work. Board and room will cost from \$3.50 to \$5.00 per week. The cost of books and other material will be very small. The instruction is largely given by lectures and demonstrations. It is desirable, however, that Short Winter Course students purchase a few standard books which will be recommended. The entire cost of one term need not exceed \$50.

CERTIFICATE OF GRADUATION.

Every student who completes in a satisfactory manner all of the studies scheduled for the four terms' work is given a Certificate of Graduation signed by the President of the University and the Dean of the College of Agriculture. It should be the ambition of every student who enrolls in the Short Course to complete all the required work and receive his certificate.



Students who enter the Two-Year Winter Course, November 1, 1911, will receive certificates similar to the one shown above, when they graduate in 1913.

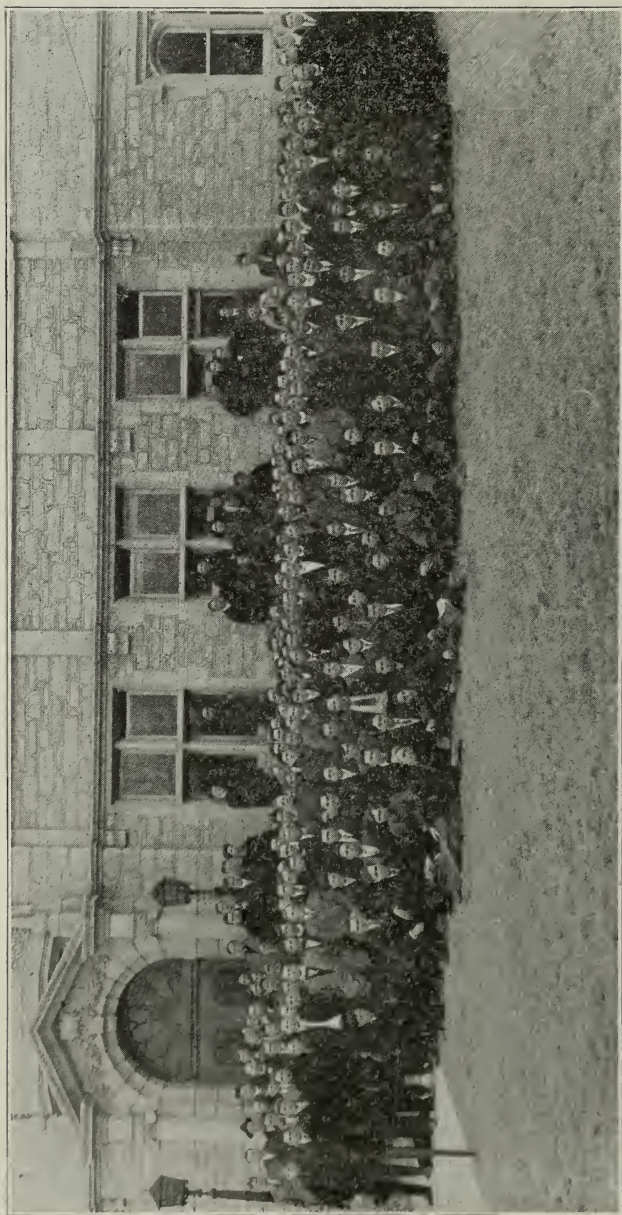
SCHEDULE OF STUDIES FOR TWO-YEAR WINTER COURSE IN AGRICULTURE.

First Year.

First Term	Lecture Hours	Laboratory Hours
Grain Judging.....	21	21
Farm Dairying.....	14	14
Feeds and Feeding.....	21	..
Live Stock Judging.....	..	21
Breeds of Live Stock.....	14	..
Shop Work or.....	..	14
Parliamentary Practice.....	..	14
Second Term		
Veterinary Science.....	14	14
Tillage and Cultural Methods.....	14	7
Animal Breeding.....	21	..
Orcharding and Small Fruits.....	14	14
Soils of Missouri.....	14	..
Live Stock Judging.....	..	21
Shop Work or.....	..	14
Landscape Gardening.....	14	7

Second Year.

First Term	Lecture Hours	Laboratory Hours
Propagation and Cultivation of Plants.....	14	14
Veterinary Science.....	14	14
Injurious Insects.....	14	7
Live Stock Production.....	21	..
Crop Production and Crop Rotation.....	14	7
Farm Accounts.....	..	14
Soil Management.....	14	..
Second Term		
Soil Fertility.....	21	7
Farm Management.....	14	..
Milk Production.....	21	..
Stock Judging.....	7	21
Farm Buildings and Machinery.....	14	14
Poultry Husbandry.....	7	14
Farm Accounts.....	..	14



STUDENTS OF THE TWO-YEAR WINTER COURSE IN AGRICULTURE.

Three hundred and four students received instruction during the winter of 1910-11. Most of these returned to Missouri farms to put into immediate practice what they had learned at Columbia.

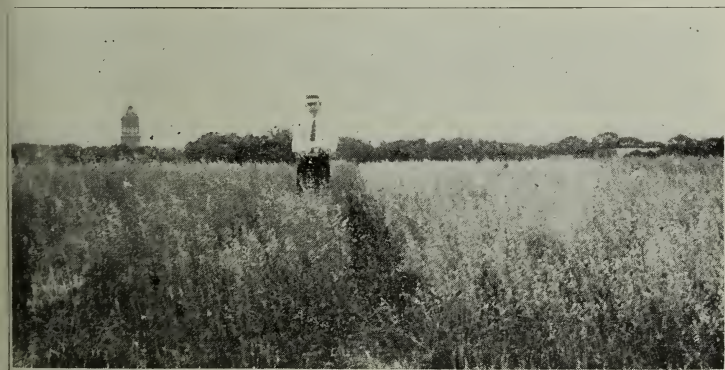
DEPARTMENTS OF INSTRUCTION.

AGRONOMY.

Mr. MILLER, Mr. HUTCHISON, Mr. HACKLEMAN, Mr. DOUGLAS,
Mr. LECLAIR, MR. HENDRIIX.

1aw. **Grain Judging.** This course has to do with the judging and the methods of grading corn, oats and wheat. Particular attention is given to the varieties of those grains best suited to Missouri conditions, and the most approved methods of selecting and judging these crops. The varieties of grain being grown at the Station and on the outlying experiment fields in all parts of Missouri are used for illustrative material in this course. Three lectures and three grain judging periods a week.

2bw. **Tillage and Cultural Methods.** This course is designed to make the student familiar with the best methods of tillage and



PROMISING PLOTS OF WINTER OATS ON THE COLLEGE FARM.

Students in the Two-Year Winter Course have an opportunity to study at first hand the results of experiments and investigations conducted at the Agricultural College.

cultivation. The laws of physics as affecting the handling of soils are studied and illustrated by laboratory and field practice. Special emphasis is laid on the control of the moisture supply in soil, the maintaining of good tilth, the preparation of seed beds and the eradication of weeds. Two lectures and one practical exercise a week.

3aw. **Crop Production and Crop Rotation.** This course is designed to make the student familiar with the methods of handling

farm crops, forage crops, potatoes and soil renovating crops, as well as the principles to be observed in planning crop rotations. The methods of seeding, cultivating, and harvesting these various crops is considered in detail, together with the manner of combining these crops into various systems of rotation. The growing and handling of clovers, cowpeas, alfalfa and grasses are given special attention. Two lectures and one practical exercise a week.

4bw. Soil Fertility and the Use of Manure and Fertilizers. This course includes a discussion of soil fertility and the methods of maintaining the productivity of soils. The relation of various crops to soil exhaustion and to soil improvement is considered and the methods of handling manures and fertilizers are given particular attention. The course is designed to bring out the principles of soil handling and fertilizing in order to maintain the highest state of productiveness. The results of experiments on the various experiment fields being conducted by the Station in different parts of Missouri are of great service in indicating the proper treatment for the different soil types of the state. Practice in mixing fertilizers and in making simple tests of soils will be a feature of this course. Three lectures and one practical exercise a week.

5bw. Farm Building and Farm Machinery. This course has to do with planning and constructing farm buildings and the arrangement of buildings on the average farm. The use of concrete for building purposes and the construction of farm conveniences will also be considered. Practice in designing and drafting plans for farm buildings forms an important feature of this work. This course also has to do with the construction and handling of farm machines and the adaptation of various forms of power to the conditions on the average farm. Practical exercises and demonstrations with various farm machines in the machinery laboratory of the University forms a large part of the work in this course. Two lectures and two practical exercises a week.

6aw. Soil Management. This course is a continuation of 4bw. It consists of fourteen lectures treating of the various methods of handling different kinds of soil for best results with various farm crops. Practical talks on the uses of all different farm machinery will be supplemented with actual demonstrations of machinery in operation so far as it is possible to do this.

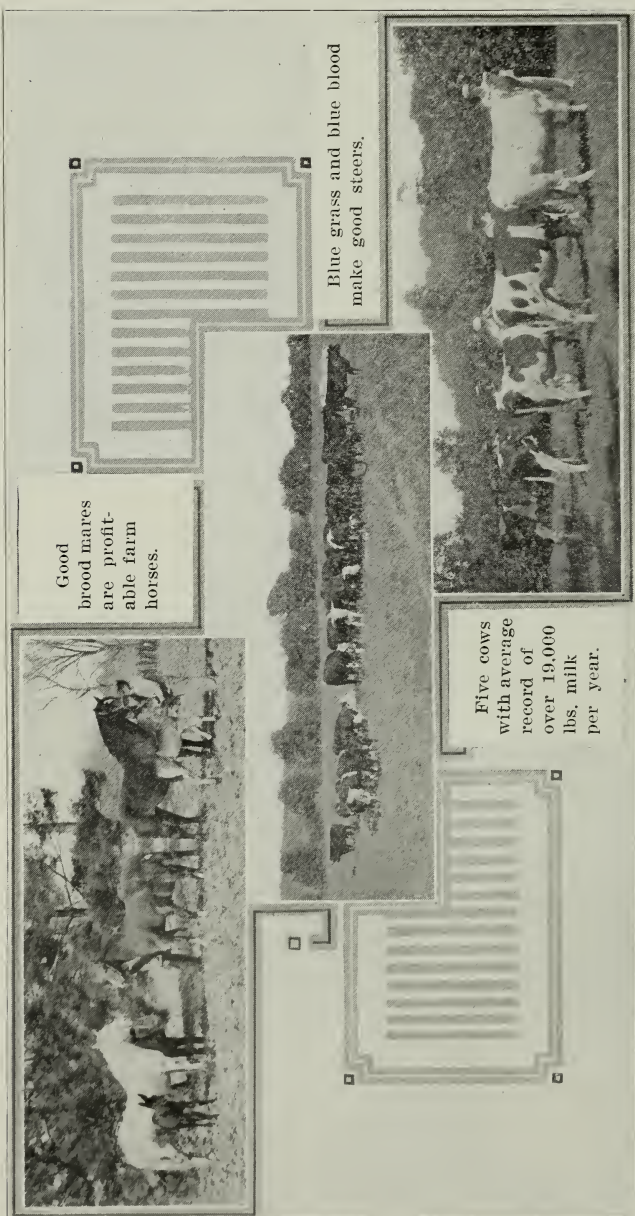


Fig. 1—Corn in Four Year Rotation with Oats, Wheat and Clover. Good cultivation but no manure, or other fertilizer.



Fig. II.—Corn in Four Year Rotation with Oats, Wheat and Clover: Good cultivation and barnyard manure.

The two plots of corn shown above were grown on the College Farm under exactly similar conditions except that the one plot (Fig. II) was given a dressing of barnyard manure while the other (Fig. I) received none. It pays to save all the litter and straw on the farm and turn it back to enrich and build up the soil.



A MONEY-MAKING COMBINATION.

The photographs show some of the live stock used in the class-rooms at the Agricultural College. They are the profitable kind—the kind that every farmer should aim to keep.

ANIMAL HUSBANDRY.

Mr. MUMFORD, Mr. TROWBRIDGE, Mr. ALLISON, Mr. MEYER, Mr. WEAVER, Mr. HACKEDORN.

1aw. Stock Judging. In this course, the score card will be studied with special reference to the scale of points adopted by the various breed associations. The purpose of the course, together with 2aw, is to thoroughly familiarize students with the types of all our common breeds of stock. Score card work and competitive judging. Three laboratory periods a week.



DESERTER.

International Champion in 1909.
Reserve Champion in 1910. Bred
and fed on the College Farm.

2aw. Breeds of Live Stock.
This course is given in connection with 1aw. It takes up the history, adaptability, feeding qualities and general utility of the leading breeds of live stock produced in this country. Two lectures per week.



THE BREEDER'S, FEEDER'S AND BUTCHER'S TYPE.

Two-Year Winter Course students have an opportunity to handle some of the best types of meat and wool producing sheep of several leading breeds.

3aw. **Feeds and Feeding.** This course properly precedes course 4aw. It includes a study of the composition, digestibility and relative feeding value of the various hays, forage, grains, mill feeds, and miscellaneous feeding stuffs; the preservation and preparation of coarse fodder; grinding, steaming and cooking food; feeding standards and the calculation of rations for the various classes of live stock. Three lectures per week.

4bw. **Animal Breeding.** A course in the principles and methods necessary in the successful breeding and improvement of farm animals. While this consists of the fundamental principles of breeding it is particularly planned for the practical breeder, and those phases of the work are emphasized which appeal directly to the student engaged in the production of live stock on the farm. Three lectures per week.

5aw. **Live Stock Production.** Twenty-one lectures with assigned reading on practical management of the various classes. It includes



A TRIO OF COLLEGE BRED DRAFTERS.

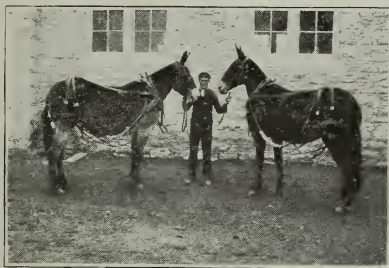
Percherons bred on the College Farm. Two-Year Winter Course students learn to recognize draft type by studying types of the leading draft breeds.

a consideration of shelter, feeding for growth or maintenance, breeding, equipment for handling properly, marketing, etc. It should be preceded by course 3aw. Three lectures per week.

6bw. **Stock Judging.** A further study of breeds of animals with special attention to their relative values for the production of

meat, milk and wool or for draft and speed. This course includes a study of market types and show ring classifications, along with a detailed consideration of differences between market and breed types. For first year students. Three laboratory periods each week.

7bw. Advanced Live Stock Judging. In this course students are required to place classes of live stock after the manner followed by judges at county fairs and live stock shows. There will be little work with the score card except by way of review. The student taking this course is assumed to have had courses 1aw and 6bw. For second year students only; three laboratory periods each week.

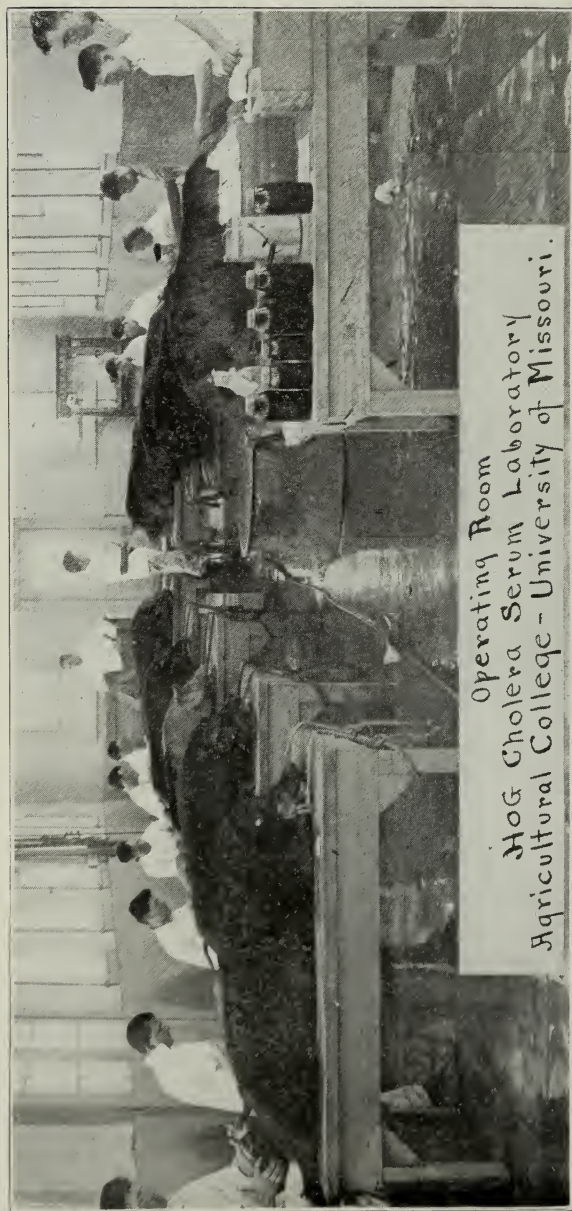


A Reliable Missouri Product.

ECONOMIC ENTOMOLOGY.

Mr. HASEMAN.

1aw. Injurious Insects. This course consists of two lectures and one field trip a week. All the important insect pests of crops, stored products, live stock and those affecting health as well as those forms which are useful as food or beneficial in controlling others which are pests, are discussed. A general discussion is given of the life history, transformation, appearance, nature of injury, and best remedies for the control of each pest. The lecture work is supplemented with a study of the actual specimens in the department collections and with observations in the field where the pests are found.



Operating Room
Hog Cholera Serum Laboratory
Agricultural College - University of Missouri.

From this laboratory over 54,000 doses of hog cholera serum have been sent out to Missouri farmers during the first eight months of the year 1911. Hog cholera serum is taken from the blood of hogs which have been made immune against cholera by special treatment. They are known as hyper-immune hogs. The above cut shows a group of students at work drawing blood under strictly sanitary conditions from hogs that have been immunized. At the present time 75 hyper-immune hogs are used in this work at the Missouri Experiment Station.

VETERINARY SCIENCE.

Mr. CONNAWAY, Mr. BACKUS, Mr. STREETER, Mr. WILSON.

1bw. **Elementary Veterinary Science.** First year, second term. During this term fourteen lectures and fourteen laboratory exercises are given on the following subjects: elements of the structure and functions of the animal body, hygiene of farm animals, indications of disease, general care and treatment of sick animals, lameness, simple surgical procedures, diseases incident to pregnancy. The laboratory and clinical work consists of practical work and demonstrations and includes a brief study of the skeletons of farm animals, the casting and control of animals, dressing of wounds, preparation and application of bandages, administration of medicines, dehorning of cattle, castration, spaying.



INJECTING HOG CHOLERA SERUM.

Any farmer who will follow directions exactly as they are furnished by the Veterinary Department of the Agricultural Experiment Station need have no difficulty in vaccinating his own hogs. All Two-Year Winter Course men are taught how to apply the serum for the prevention of hog cholera.

2aw. **Veterinary Medicine and Surgery.** Fourteen lectures and fourteen clinical exercises and demonstrations. The following subjects will be considered: The teeth, their significance as regards age, also their defects and treatment; diseases of the alimentary tract, indigestion, colic, etc.; diseases and injuries of the bones, limbs and joints; diseases of the skin and eyes; diseases of the respiratory and nervous system;

parasites and contagious diseases. The laboratory and clinical demonstrations will include dressing of the teeth, setting of broken bones by means of splints and casts, use of antiseptics, methods of disinfection, shoeing of horses, vaccinating against black leg, testing for tuberculosis, immunizing against hog cholera, methods of making post-mortem examinations. Tuberculosis and hog cholera will receive special attention.



LEARNING TO DO BY DOING.

Two-Year Winter Course men are taught how to give medicines to farm animals as well as what to give, for ordinary troubles which all good stock men should understand.

THE NEW VETERINARY BUILDING.

A fine new building for the use of the Veterinary Department has just been completed and will be ready for occupancy before the opening of the school year. The new building is a three-story stone structure 120 feet long and 60 feet wide. It will contain two large operating rooms, one dissecting room, one large laboratory for the study of Animal Physiology, several smaller laboratories and a lecture and class room. In addition to the Veterinary building, another smaller building is devoted entirely to the manufacture of hog cholera serum. This building is also used as a student laboratory in studying serum manufacture.

HORTICULTURE.

Mr. WHITTEN, Mr. HOWARD, Mr. CHANDLER, Mr. MAJOR,
Mr. SZYMONIAK.



THE HORTICULTURAL BUILDING.

A stone building 120 by 54 feet, two stories and a well-lighted basement with plant house and insectary each 16 by 50 feet, contains class rooms, laboratories, offices and preparation room for Horticulture, Botany and Entomology. Most of the work in Horticulture done by Two-Year Winter Course students is given in this building.

1aw. Propagation and Cultivation of Plants. First term, second year. The propagation of cultivated plants by means of seeds and by buds, including the treatment of refractory seeds to secure germination; the propagation of plants from cuttings; by root tips; layering; budding; grafting, etc. General nursery practices, together with the management of hotbeds, transplanting, etc. Fourteen lectures and fourteen laboratory periods.

2bw. Orcharding and Small Fruits. Second term, first year. A consideration of fruit soils and the planting, cultivation, pruning and general management of orchard trees and small fruits, together with the marketing, grading and general disposition of the same. Fourteen lectures and fourteen laboratory periods.

3bw. **Landscape Gardening.** A study of the common trees, shrubs and flowering plants used in the decoration of home grounds, and a proper grouping of the same to give a neat and pleasing effect to the farm or city home. Methods of making and preserving lawns, management and cultivation of decorative plants and flowers, pruning and spraying of shade and ornamental trees are features of the work in Landscape Gardening. Fourteen lectures and seven laboratory periods.



A SINGLE PLANT.

Short Course students learn how to grow full crops of small fruits.

GEOLOGY.

Mr. KRUSEKOPF.

1aw. **The Soils of Missouri.** This course takes up a study of the origin and classification of the soils of Missouri and their relations to the geology of the State. A careful study is made of the character and crop adaptation of the soils in one or more counties representative of each of the broader soil divisions, these studies being based on the work of the Soil Survey. Attention is also given to the loss of soils through erosion, to the best methods of checking it, and to the subjects of drainage as applied to Missouri soils.

SHOP WORK.

Mr. SELVIDGE, Mr. JARVIS.

1aw. **Woodwork.** Students are taught the use and care of tools, the principles and functions of carpentry with special reference to carpentry of the farm. Elective in first term of first year. Two periods a week.

2aw. **Forging.** This course includes instruction in welding, bending, forming and drawing iron and tempering steel. In applying these principles, constant reference will be had to uses of the farm. Elective in second term of first year. Two periods a week.

POULTRY HUSBANDRY.

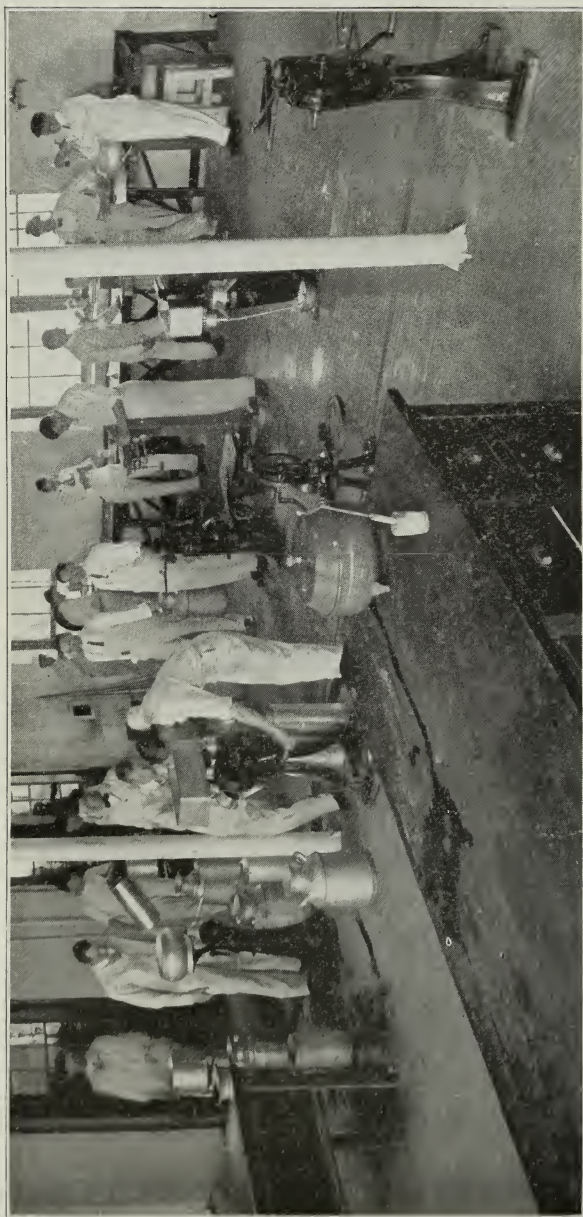
Mr. KEMPSTER.

1bw. **Farm Poultry.** Instruction in the breeding, feeding and general management of poultry; the operation of incubators and brooders; the planning and construction of poultry houses and the handling of poultry products.

PARLIAMENTARY PRACTICE.

Mr. MEYER.

1aw. **Agricultural Organization and Co-operation Among Farmers.** A consideration of the purposes and effects of local Farmers' Clubs, Granges, County Agricultural Societies, etc., together with methods of organizing and conducting same. The course will also include a study of the powers and duties of electors and officers at district school meetings. Roberts' Rules of Order will be used as a text. Elective in the first term of the first year. Two periods each week.



STUDENTS AT WORK IN THE DAIRY.

All Two-Year Winter Course students are given an opportunity to work in the farm dairy and learn by actual practice how to run hand separators, milk testers, churns and butter workers of various makes.

DAIRY HUSBANDRY.

Mr. ECKLES, Mr. RINKLE, Mr. WHITE, Mr. WOBUS, Mr. WOODWARD,
Mr. BRANDT.

1aw. **Farm Dairying.** The aim of this course is to give the student such instruction regarding dairy work as will be of value to anyone engaged in farming whether especially interested in the production of dairy products for market or not. The course consists of two lectures and two laboratory periods a week in one term of the first year of the Short Course. It includes the nature, composition and properties of milk, its use as food, the separation of cream, and butter making under farm conditions, testing cream and milk for butter fat, testing individual cows, the proper methods of handling milk and cream.

2bw. **Milk Production.** This course consists of three lectures a week in the second term of the second year. The purpose of this



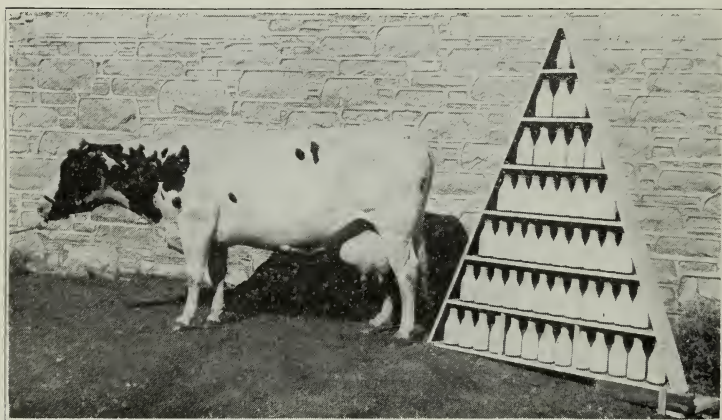
THE UNIVERSITY DAIRY BUILDING.

A stone building 43 by 150 feet, two stories high with cheese curing room in the basement. Contains large rooms for creamery manufactures, cheese making, farm dairy practice, milk testing, in addition to class rooms. In this building Two-Year Winter Course students receive practical work in all lines of farm dairying, caring for and testing milk, ripening cream, making butter, etc.

course is to give practical instruction regarding the dairy cow on the farm, including adaptation of breeds for various purposes, selection of individual cows by type and by records, keeping milk and butter fat records, selecting the bull, raising calves, feeding cows, general

care and management. The large herd of dairy cattle belonging to the College and other nearby dairy herds are used in demonstrating and illustrating this course.

3bw. Creamery Butter Making. This course is offered for the benefit of those who wish to fit themselves for creamery work or to operate large private dairies. Elective in second term of either first or second year. Three lectures and from two to five laboratory periods per week. The object of this course is to train the student in the methods followed in the operation of butter factories, such as sampling and testing cream, pasteurizing cream, butter making, preparation of starters and packing butter for market.

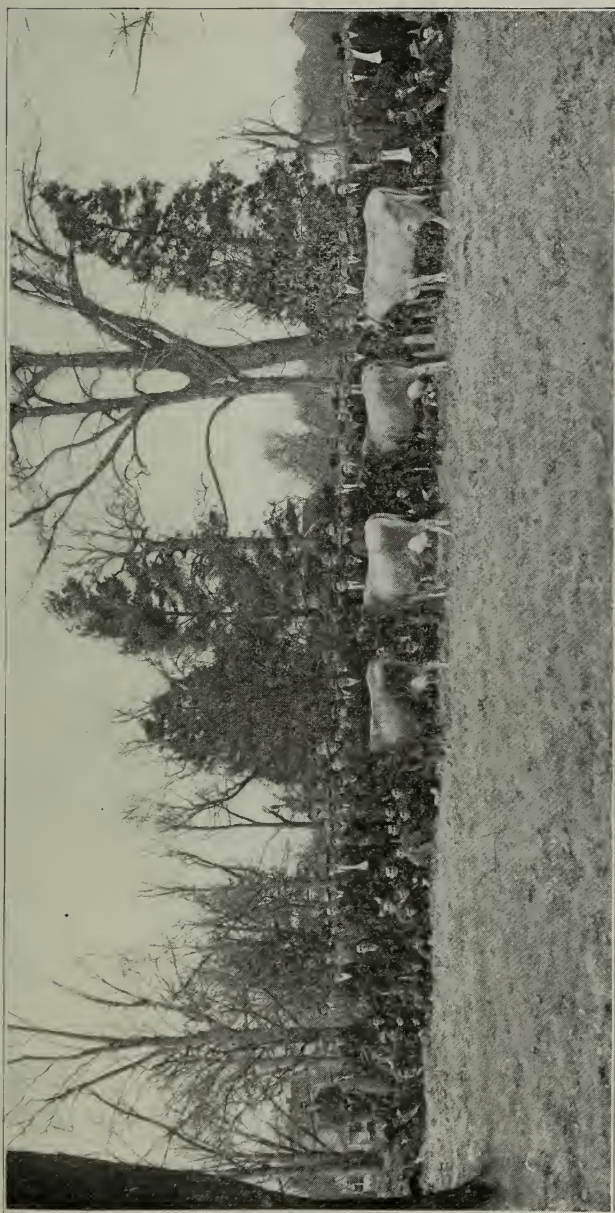


**"JOSEPHINE" AND THE MILK SHE PRODUCED IN
ONE DAY.**

Missouri Chief Josephine was born and raised on the College Farm. She weighs 1450 pounds and is nine years old. As an eight-year-old she made the following official record:

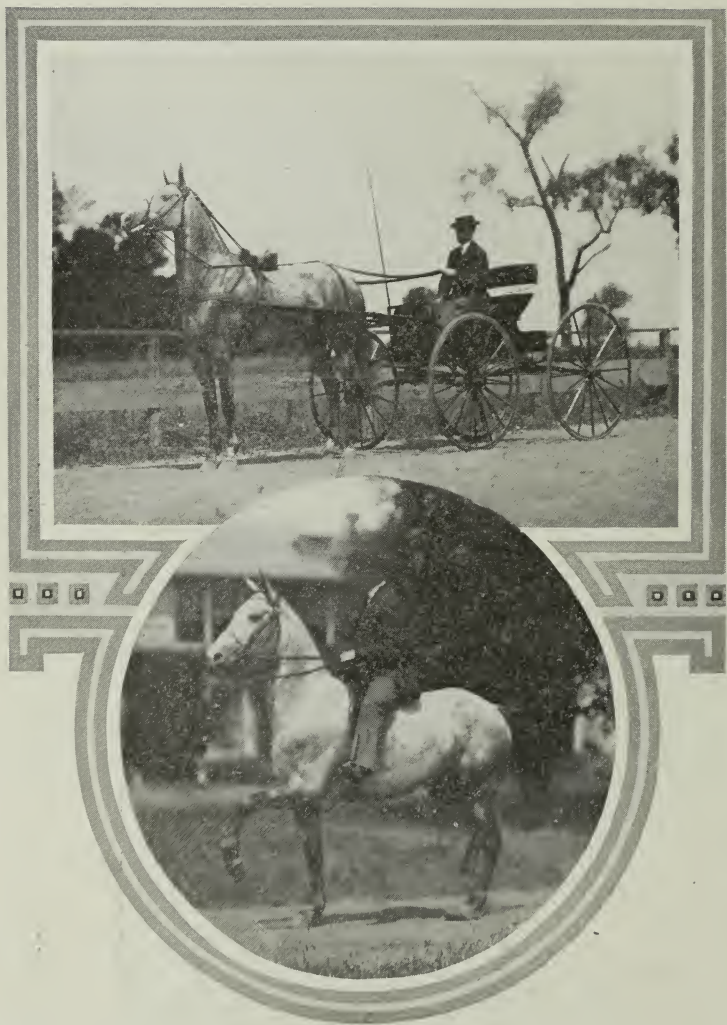
Milk.		Butter Fat.	
1 day.....	110.2 lbs.	1 year.....	740.5 lbs.
1 month.....	3002.0 lbs.	Butter (1-6 overrun)	
6 months.....	17008.0 lbs.	1 year.....	864.0 lbs.
1 year.....	26861.0 lbs.		
Butter (80% Holstein method of calculation).....			925.0 lbs

Josephine holds the world's record for milk production for 4 months, 6 months, 9 months and 11 months.



A SHORT COURSE CLASS IN STOCK JUDGING.

Two-Year Winter Course students learn to recognize a good dairy cow by carefully studying and comparing the excellent producers found in the Missouri College herd.



A PROFITABLE TYPE.

The saddle and harness horse industry of Missouri is materially assisted by the encouragement given it through the medium of the instruction given in the Agricultural College.



The true beef type,
low, deep, blocky and
compact.

Broad,
deep-
chested,
strong
constitu-
tioned.



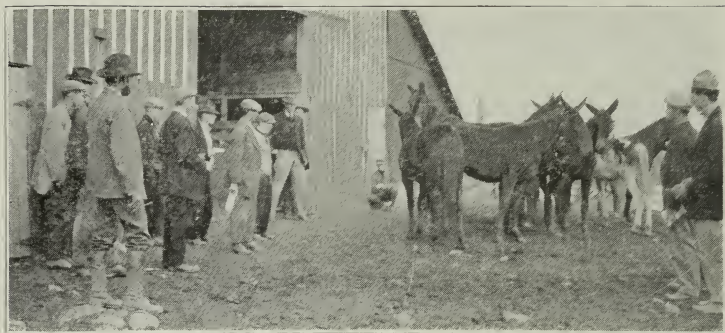
A portion of
the 1910 Show
Herd.

Type and quality in
Shropshires.



PRIZE STOCK ON COLLEGE FARM.

Two-Year Winter Course students handle prize winners and learn how prize winners are bred and fed.



A PRACTICAL LESSON IN MARKET CLASSES AND
COMMERCIAL VALUES.



STUDYING THE PROFITABLE TYPE IN BROOD MARES.



A PRACTICAL AND CHEAP WATER GATE.

The farm is the farm management laboratory. The class makes regular trips to farms that are under the direction of the Farm Management Department. The accompanying illustrations show the students getting results from the farm. Placing values on mules, under the instruction of an experienced mule dealer, learning to recognize the profitable farm type in brood mares, studying handy devices that reduce labor, are some of the lessons learned from the farm.

FARM MANAGEMENT.

Mr. DOANE. Mr. JOHNSON.

6bw. **General Farm Management.** This course has for its main object the making of a practical farm plan. Each student makes a map of his home farm, and with this as a basis replans the practical farm operations, considering the profitable outcome and the increasing of the soil fertility as the main object. A crop rotation will be planned, the best and most approved methods for handling the crops within this rotation, the profitable utilization of these crops by stock, the amount of stock that can be kept, and methods or systems of live stock management, including their purchase, housing and sale, are points that will be dealt with in detail.



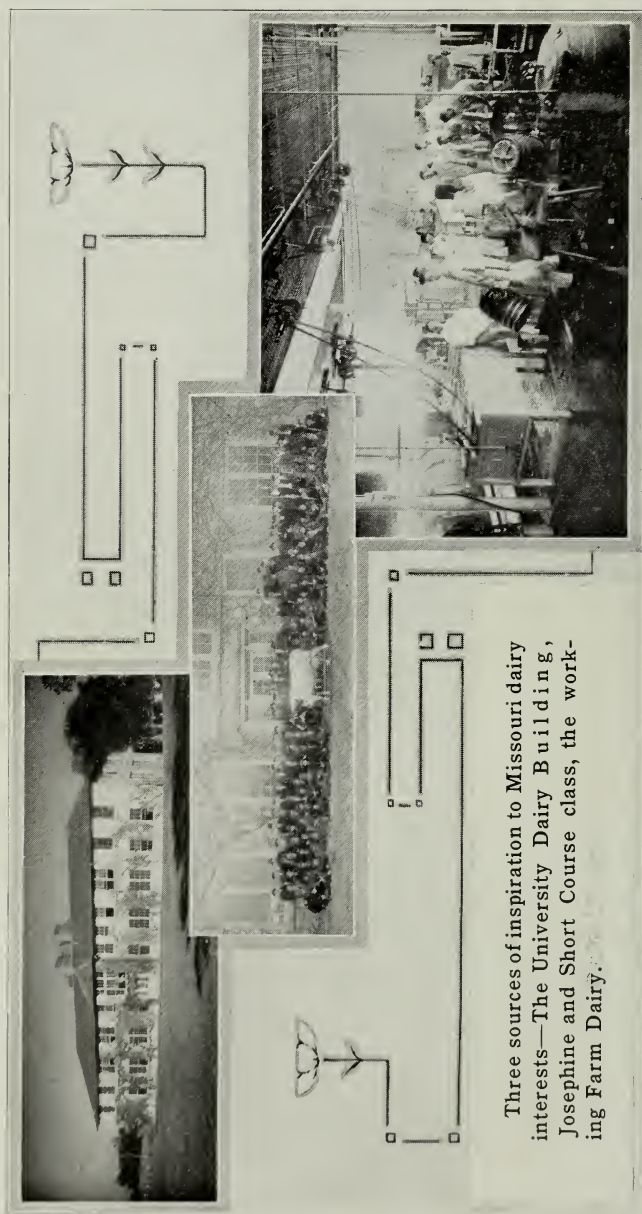
A poorly laid tile drain is money wasted. Short Course students study right methods of tiling.

It is arranged to make, first of all, a thorough study of taking inventories and keeping financial records. More time is devoted to this than any other phase of accounting because it is more important. Labor, feeding and dairy records are also studied. Monthly statements and annual summaries are made. Practical data for all work is used.

3aw and 4bw. **Farm Accounts.** This course consists of fourteen laboratory periods each term of the second



A group of students studying methods and results of handling pure bred sows on a commercial basis on a Missouri farm where over one hundred and fifty are kept.



Three sources of inspiration to Missouri dairy interests—The University Dairy Building, Josephine and Short Course class, the working Farm Dairy.

The Two-Year Winter Course is meeting the growing demand for instruction in advanced dairy methods by affording an opportunity to study the whole question from the breeding and feeding of the dairy calf to the sale of the finished dairy product.

FREE CASH SCHOLARSHIPS.

Sixty-one students may attend the Two-Year Winter Course in Agriculture beginning November 1, 1911, and have all their expenses paid for one or both terms. This is made possible through the offer of the following cash scholarships: by the Frisco Railroad, 45 scholarships valued at \$4500.00; by the Santa Fe Railroad, 12 scholarships valued at \$600.00; by the Missouri State Fair Management, 2 scholarships valued at \$200.00; by the State Board of Agriculture, 1 scholarship valued at \$100.00, and by the State Board of Horticulture, 1 scholarship valued at \$50.00, making a total of \$5450.00 in cash that will be given to students of the Two-Year Winter Course in Agriculture.

Railroad Scholarships. Co-operation and not philanthropy is the motive of the Frisco and Santa Fe Railroads in offering \$5100.00 to send young men to the Two-Year Winter Course in Agriculture.



FRISCO COUNTY STUDENTS, 1910-11.

The Frisco Railroad's scholarship offer is getting results. In 1909-10 there were 46 students in the Two-Year Winter Course from the Frisco counties. In 1910-11 this number increased to 137, an increase of nearly 300 per cent.

The more the farms of Missouri are made to produce the greater will be the amount of railroad traffic so that increased profits to the farmers will also mean increased profits to the railroads.

Appreciating the fact that the Two-Year Winter Course in Agriculture makes prosperous farmers by training young men to grow larger crops of grain, forage and fruit on a given area, to produce more

and better live stock at less cost and to increase the productiveness of Missouri farm lands, two railroads of the state offer one Short Course scholarship in each county through which their lines pass.

The Frisco Scholarships. The Frisco Railroad offers a scholarship of \$100 in each of the 45 counties in Missouri through which their lines extend. These scholarships will be awarded to any man or boy between the ages of 18 and 40 years who grows and exhibits the best ten ears of corn in his county this year. A County Corn Show will be held this fall sometime before the first of November in every county in Missouri through which the Frisco Railroad runs where the corn entered in this contest for that county must be shown. An expert corn judge from the College of Agriculture will be present and judge the corn.

Frisco Counties: Bates, Barton, Barry, Bollinger, Butler, Camden, Cape Girardeau, Cass, Carter, Christian, Crawford, Dade, Dent, Dunklin, Franklin, Greene, Howell, Henry, Hickory, Jasper, Jackson, Jefferson, Johnson, Laclede, Lawrence, McDonald, New Madrid, Newton, Oregon, Pemiscot, Perry, Phelps, Polk, Pulaski, Ripley, St. Clair, Ste. Genevieve, St. Louis, Scott, Shannon, Stoddard, Texas, Wayne, Webster, Wright.

The Santa Fe Scholarships. The Santa Fe Railroad believes that the more good farmers they have along their lines the more business will the railroad do. With characteristic enterprise they have announced that they will offer a scholarship of \$50 in cash in each of the twelve counties in Missouri through which their lines extend. Each of these scholarships will be sufficient to pay all necessary expenses incurred by the winner while attending the seven weeks' term beginning November 1st and ending December 23rd. The scholarships will be awarded in each county to the man between the ages of eighteen and forty years who exhibits the best ten ears of corn at the County Corn Show.

Santa Fe Counties. Adair, Buchanan, Carroll, Chariton, Clark, Clinton, Jackson, Knox, Linn, Macon, Ray, Scotland.

State Fair Scholarships. In order to encourage and develop an interest in better live stock and corn for Missouri the State Fair Management offers two \$100 cash scholarships to be awarded at the 1911 State Fair, which is held at Sedalia, Missouri, September 30 to October 6. Special arrangements have been made for a live stock judging contest and a corn judging contest. The winners of each of these contests will receive \$100 in cash to be used in attending the Two-Year Winter Course in Agriculture at Columbia, beginning No-

vember 1, 1911. Other cash prizes to the amount of \$265 will be offered in the stock and corn judging contests. Only contestants between the ages of 16 and 20 years may compete for the scholarships.

Board of Agriculture Scholarships. The State Board of Agriculture offers a scholarship of \$100 for the purpose of paying the expenses of a young man interested in dairying during the first two terms of the Two-Year Winter Course in Agriculture at Columbia, beginning November 1, 1911. The awarding of the scholarship is to be based upon the result of a dairy cow competition. Each contestant is to keep a record of the milk and butter fat produced during the month of September. The contest is open to all boys in Missouri between the ages of 16 and 20 who have not attended an Agricultural College. For particulars address the College of Agriculture, Columbia, Missouri.

Board of Horticulture Scholarship. The State Board of Horticulture of Missouri has set aside \$50 as a scholarship in the Two-Year Winter Course in Agriculture at Columbia, for the term beginning November 1, 1911. The rules under which this scholarship is awarded provide that the contestant must choose one-half peck of apples of any variety and send them to the Department of Horticulture, Columbia, Missouri, by prepaid express before October 15. From the samples sent a committee will select a plate of each and these will be judged by an expert judge, the winner to receive the \$50 cash scholarship.

PRIZES AND MEDALS.

At the close of the Two-Year Winter Course in Agriculture, each year there is held a live stock judging contest to which all second year students are eligible. The contest consists in placing classes of the various breeds of live stock, just as is done at local and state live stock shows, except that in the Short Course contest, students are required to give written reasons for their placing. The contest always arouses the keenest interest and enthusiasm, and the students who have worked hardest, and studied most faithfully from day to day during their two years at Columbia are invariably the ones who win the prizes. The medals offered for the winter of 1911-12 are:

Holland Percheron Medal, a gold medal valued at \$50, offered by the Holland Stock Farm of Springfield, Missouri, to be awarded to the best judge of draft horses. It is an annual prize.

Thompson Galloway Medal, offered by A. M. Thompson, of Nashua, Missouri, a gold medal to be awarded to the best judge of beef cattle.

Peabody Berkshire Medal, a gold medal offered by June K. King

& Sons, of Marshall, Missouri, proprietors of Peabody Farm, to the best judge of swine.

Henley Ranch Shropshire Medal which will be awarded to the best judge of sheep. A gold medal offered by the Henley Ranch of Greencastle, Missouri.

Missouri Jersey Cattle Club Medal, a gold medal offered by the Missouri Jersey Cattle Club, to be awarded to the best judge of dairy cattle.

SHORT COURSE LITERARY SOCIETY.

All students taking the Two-Year Winter Course in Agriculture are urged to become members of the Short Course Literary Society. This organization is entirely under the control of Short Course students who elect their own officers, make their own rules and regulations, appoint committees and transact the usual business of such a society. Meetings are held every Friday evening at which a program consisting of music, recitations, readings and debates is presented. It furnishes one of the most enjoyable and profitable features of the course and no student should fail to take advantage of the opportunities it offers.

OTHER ORGANIZATIONS.

The Short Course offers opportunities to become familiar with the work and purposes of the Grange, the Farmers' Union, The Missouri Experiment Association and numerous other state and local farmers' societies, all of which are open to students of the Winter Course. Many will find it distinctly to their personal advantage to become members of one or more of these organizations.

THE FARMERS' SHORT COURSE.

During the second week of January there will be held at the Agricultural College what is known as the Farmer's Short Course. It is a week of conventions. Men prominent in agriculture from all parts of the United States are present to address the meetings. Nearly all the live stock, grain and other agricultural associations meet and present interesting programs.

THE AGRICULTURAL LIBRARY.

The Agricultural Library contains 7500 books relating to all phases of farming. Here, too, may be found current files of all prominent American farm papers, experiment station bulletins, reports of the national Department of Agriculture, and of various agricultural societies of Missouri and other states. The library is open to Short Course students at all times and affords a splendid opportunity to become familiar with the choicest farm literature.

**READING ROOM IN AGRICULTURAL LIBRARY.**

One of the busiest places in the University during the session of the Two-Year Winter Course in Agriculture.

THE UNIVERSITY Y. M. C. A.

One of the largest organizations in the University is the Y. M. C. A. It has a membership of 600, made up of men from all classes and departments. The building, located at the main entrance to the Campus, is worth \$75,000 and is the social center for all students. Students in the Two-Year Winter Course may become members in the same way, and enjoy the same privileges as other University students. The building has dormitory accommodations for 81 men, club rooms, parlors, reading rooms, swimming pool, bowling alleys, pool room, and other features attractive to young men.

The Association conducts Bible classes, religious meetings and attempts to encourage young men in sane religious thinking and helpful service. Students are assisted in finding rooms and boarding houses, and through the Association are made a part of the life of the University. A successful employment bureau is conducted which assists young men who have to earn all or a part of their expenses. Men who contemplate entering the Two-Year Winter Course in Agriculture and who desire information about rooms, board, or employment, should address the Secretary of the Y. M. C. A., Columbia, Missouri.

**THE UNIVERSITY Y. M. C. A. BUILDING.**

SHORT COURSE IN HOME ECONOMICS.

Cooking, sewing, hygiene and home sanitation, laundry work and the home care of the sick are taught in the Department of Home Economics of the University. Short Courses in these subjects will be offered for the first time beginning January 3, 1912, and continuing for eight weeks.

The University has provided new and commodious quarters for the Department of Home Economics. Every facility will be given for securing the largest possible amount of practical instruction in these important subjects in the time given to those courses.

Subjects of Instruction.

	Lecture Hours	Laboratory Hours
Laundry Work.....	..	16
Home Care of the Sick.....	16	..
Food Work.....	16	24
Hygiene and Sanitation.	24	..
Sewing.....	..	40
	56	80

Lecture and laboratory exercises begin at 9:00 a. m. and close at 4:00 p. m.

Students will be permitted to elect Dairying, Horticulture and Poultry Husbandry in place of a part of the work outlined above.

Laundry Work. The applications of science to practical laundrying such as may be worked out by the study of blueings, starches, and soaps with the effects of each upon the different fabrics. A comparative study of the different brands of the above mentioned laundry necessities will be made and their relative values for the different purposes estimated. Laundry equipment will be investigated with the idea of providing that which will enable the work to be done with the least expenditure of labor and money.

Home Care of the Sick. Considering first the care of the patient, the topics discussed will be; choice and preparation of the sick room, care of patient, bathing of patient, making of patient's bed, and the importance of carrying out the doctor's orders explicitly. Next, as so many diseases are transmissible, the prevention of further contagion will be considered, isolation of patient, disinfection of anything removed from room, and care of room after the recovery of the patient. Special attention will be given to the care of the patient during certain more common diseases, as tuberculosis, typhoid and pneumonia, in which the nursing is such an important factor.

Food Work. A study of what to eat, how much to eat and how it should be prepared. This course aims to make the student independent of the receipt by teaching general combining proportions and the principles underlying various combinations. Sufficient attention is



THE FOOD LABORATORY.

Where girls will study the proper preparation of foods.

paid to the composition of the foods studied to give a general knowledge of what we should eat, and an idea of the comparative nutritive value of the different food-stuffs.

Sewing. Garment cutting and making from patterns which have been drafted and fitted. This course aims to make it possible for the student to plan her own underwear and simple dresses, then draft a pattern for or adjust a ready made pattern, cut, fit, make, and finish garments. Enough of hand work is given to enable the student to finish neatly the garments made, and to keep all clothes in repair. The comparative cost of different grades of material and methods of making is considered.

Hygiene and Sanitation. The effect of the air we breathe, the water we drink, and the house in which we live upon our physical health. This course aims to bring out the close relation which exists between disease and such simple factors in our every day life as fresh

air, proper care of the body, furnishing of home so it does not harbor dust, etc. This is an age of preventive medicine. Let us learn how to keep well.

For courses in Dairy Husbandry, Horticulture, and Poultry Husbandry, see announcement of course under these heads. (If a sufficient number of young women elect Dairy Husbandry a special section will be organized.)

THE FOUR-YEAR COURSE IN AGRICULTURE.

Students who have had the equivalent of a four year high school training are advised to enter the regular Four-Year Course in Agriculture. The opportunities for graduates of this course are unlimited. The College has not been able to supply the demand for farm managers, teachers in Agricultural schools, investigators in experimental stations, scientific aids in the United States Department of Agriculture, foresters, farmers' institute lecturers and agricultural journalists.

One of the recognized functions of the College of Agriculture in its four year course is to train men for actual farm work. The University of Missouri believes that the young man who is to manage a good Missouri farm is entitled to the same high grade of instruction as the man who is to become a lawyer, a physician, a preacher or a teacher. Every important phase of farming is given careful attention, stock raising, fruit growing, grain farming, dairying, poultry raising, drainage, crop rotation and business management.

Fifteen units, the equivalent of a four-year high school course, are required for admission to the four-year college course in Agriculture. A unit is the equivalent of a high school subject pursued five periods a week for at least thirty-six weeks.

Applicants for admission who are deficient in a small portion of the requirements may be admitted conditionally at the discretion of the Committee on Entrance.

All prospective students should write to the Committee on Entrance, Columbia, Missouri, for further information in reference to admission.

SPECIAL STUDENTS.

Mature men and women may be admitted to the College of Agriculture for special study in such subjects as they are prepared to pursue with profit to themselves. Such students must be at least twenty-one years of age. Special students are not candidates for degrees and cannot become such until they have fulfilled all requirements for admission.

FEES AND EXPENSES.

Tuition in the College of Agriculture is free. An incidental and library fee of \$5.00 for each semester is required of all Missouri students. The fee for students from outside the state is \$10.00 a semester. In laboratory courses a deposit is required to pay for the material used and damage to scientific apparatus.

The necessary expenses for the Freshman year are estimated in the table given herewith:

Estimated Expenses of Freshman Year:

Library and incidental fee.....	\$ 10.00
Room rent and room furnishings.....	35.00
Dining room permit and initiation fee.....	23.00
Caution deposit.....	8.00
Board for forty weeks.....	60.00
Books, stationery and school supplies	25.00

Laboratory Deposits:

Chemistry, \$5.00; Botany, \$5.00; Dairy, \$5.00; Chemistry \$5.00.....	20.00
Laundry, \$15.00; Incidentals, \$25.00.....	40.00
	<hr/>
	\$221.00

The above estimate does not include cost of travel, clothing or entertainments, and assumes that the student will live in the University dormitories. The cost of board and room out in town will be higher.

Paying One's Way Through the University. It is variously estimated that from twenty to thirty per cent of the students in the College of Agriculture are paying all or a considerable portion of their expenses by working while attending the University. Such students work for the various departments of the College in caring for the live stock, assisting in the Dairy Department, working for the Experiment Station, helping in the preparation of hog serum and giving assistance in pruning, spraying and planting on the Horticultural grounds. Two hundred and thirty-one students were given a greater or less amount of work in these various departments during the past year.

Students also find employment in Columbia caring for furnaces, waiting on tables, clerking and numerous other ways.

Degrees. The degree of Bachelor of Science in Agriculture is conferred upon all students completing the regular agricultural course.

Master of Science in Agriculture is awarded for one year's graduate study in the technical subjects of the College and the submission of a satisfactory thesis.

The degree of Doctor of Philosophy is conferred upon graduate students who have devoted not less than three years of advanced study to some special branch and have attained exceptional proficiency in original research.

MISSOURI STOCK JUDGING TEAM.

At the 1910 International Live Stock Exposition there was held a student stock judging contest to which nine of the leading agricultural colleges of the United States and Canada sent judging teams. The Missouri team won first in judging saddle horses, first in draft horses, first in cattle, first in judging swine, and second in sheep. These winnings placed the Missouri College first in the grand total by the highest score that has ever been made by any winning team in any previous International student contest.



TROPHIES WON BY THE MISSOURI COLLEGE IN
1907-8-9-10.

OTHER ACTIVITIES IN THE COLLEGE OF AGRICULTURE.

Teaching Agriculture Out in the State. Six men from the College of Agriculture in thirteen days' time gave instruction in Agriculture to 93,800 people. This was accomplished by means of special trains furnished by the Frisco, Burlington, and Wabash Railroads.

Instructors from the College taught Agriculture to 2,300 persons in night schools at St. Louis and at Kansas City.

Twenty-one teachers from the College of Agriculture made public addresses on agricultural subjects during the past year in each of the 114 counties of Missouri. The total number of addresses made at these meetings was 460. Over 100,000 farmers attended these meetings.

The College uses this means to explain the results of the agricultural experiments made by the Experiment Station and to demonstrate modern methods of agriculture.

Judging Live Stock at County Fairs. The Agricultural College supplied forty-two county fairs with expert judges of live stock in 1910. These expert judges were trained for this work by the Animal Husbandry Department. It required ninety-five days and the services of twelve men to supply this demand for judges.

The total number of animals examined and placed for the award of prizes was 6,027.

There were 304,000 people attending these fairs.

By this means the College is using the most efficient and practical method of educating stock men and farmers how to select and develop the most profitable types of animals.

Teaching Agriculture in the Rural Schools. The College of Agriculture has supervised directly the agricultural instruction of 741 pupils in the Rural Schools of Missouri during the Session of 1909-10. The University is sending a competent instructor to the rural school and there aiding the rural school teacher in teaching Agriculture efficiently.

More than thirty thousand bulletins were published especially for teachers in Rural Schools during the year on the subjects of "Ten Lessons on Indian Corn," "The Soil," and "The Horse." In addition large numbers of other Experiment Station and College Bulletins have been sent to teachers and pupils.

In the development of this work the College of Agriculture has visited thirty-two counties of Missouri. The instructor in Rural Education has delivered forty-one public addresses to 9,265 pupils.

In the regular University Summer School rural school teachers are given instruction in Agronomy, Animal Husbandry, and Horticulture.

The Farmers' Short Course. During the Farmers' Week Convention at Columbia the College of Agriculture offers each year a

Short Course for farmers. This continues for one week and 1300 farmers were enrolled in 1911.

Teaching Agriculture to Teachers. Each summer from June to August, the College of Agriculture offers special courses to teachers with a view to preparing them to teach Agriculture in the rural and high schools of Missouri. More than 150 teachers were enrolled in these courses in 1910.

Farmers' Institutes. In co-operation with the State Board of Agriculture, men from the Agricultural College have delivered 460 public addresses at Farmers' Institutes and other Agricultural meetings in Missouri.

Farm Management Demonstration Meetings. The College of Agriculture in co-operation with the United States Department of Agriculture has inaugurated a plan of holding Farm Management Demonstration meetings on the farms of the managers of the demonstration farms which are conducted under the direction of the Department of Farm Management.

Correspondence. In one year's time men in the College of Agriculture have received and answered 40,000 letters and post cards. In most cases personal replies have been made to definite questions relating to agricultural practice. The correspondence of men in the College of Agriculture has doubled during the past twelve months.

The Traveling Dairy Instructor. The College of Agriculture is helping in the development of the dairy industry of the State. It maintains a traveling Dairy Instructor whose whole time is devoted to organizing and instructing Dairy Associations and individual dairy farmers in Missouri.

Boys' Corn Growing Contest. In 1910 there were 3000 Missouri boys and young men enrolled in a corn growing contest under the direction of the College of Agriculture. Full directions for selecting, planting, cultivating and harvesting are furnished these men by the College of Agriculture. When the crop is harvested the corn is exhibited at a county corn show and judged by men from the College or Board of Agriculture. In counties located in South Missouri the winners received a \$100 scholarship in the Short Winter Course in Agriculture offered by the Frisco Railroad. In twelve Missouri counties through which the Santa Fe Railroad runs a scholarship of \$50 was given to young men who won in the county corn show.

Boys' Short Course. The College offers a special course of one week to farm boys in grain and live stock judging. In 1910, thirty-one boys from twelve to sixteen years of age were thus given the benefits of instruction in better methods of farming.

The Experiment Station. The Experiment Station is a Division of the College of Agriculture. Its function is original investigation for the benefit of agriculture.

The establishment of the Experiment Station as a Division of the College of Agriculture has had a profound influence upon the instructional activities of the institution. It has emphasized the fundamental importance of original research and the investigations in progress have furnished the best sort of material for demonstrations. Advanced students are utilized as much as possible for assisting in experimental work and are thus enabled to acquire valuable practical experience. Some of the results of the work of the Experiment Station are mentioned below:

RESULTS OF THE EXPERIMENT STATION WORK.

Distribution of Hog Cholera Serum. The Experiment Station inoculated 60,000 hogs during the past year. Eighty-five per cent of these hogs were saved. At a conservative estimate, the work of the College has added \$600,000 in cash to the resources of Missouri in this item alone in one year.

The Veterinary Department in charge of Dr. J. W. Connaway, is now inoculating 10,000 hogs a month. The station is not yet able to supply the demand for hog cholera serum. A new laboratory used exclusively for making this serum has recently been completed to meet this rapidly increasing demand.

The estimated annual loss resulting from Hog Cholera in Missouri is \$1,500,000. It is confidently expected that the work of the College will in time stamp out or efficiently check this dread scourge and by so doing add this large sum annually to the wealth of the State.

RESULTS ON OUTLYING EXPERIMENT FIELDS.

Soil Experiments on the Station's field at Monroe City in Northeast Missouri have increased the yield of wheat by sixteen bushels per acre with a corresponding increase in the net profit.

On the Soil Experiment field at Lamar in Southwest Missouri it has been shown that corn may be increased from twenty bushels to forty-five bushels per acre. In the same locality wheat has been increased twelve bushels per acre.

Good soil management on one of the Station's outlying experiment fields located at Victoria increased the clover yield from one-

half ton to two tons per acre. The increased net profit was \$6.00 per acre.

In Christain County corn yields have been increased sixteen and a half bushels per acre and clover one ton on each acre by the application of results obtained by the Missouri Experiment Station on its Billings field.

RESULTS OF SOIL SURVEY.

As a result of the investigations relating to the soil survey of Missouri, there has already been accomplished a general preliminary soil survey of the whole State. A more careful survey of the Ozark region and of Northeast Missouri has been made. A thorough and detailed agricultural and soil survey of the following counties in Missouri has been completed: Atchison, Audrain, Barton, Bates, Cape Girardeau, Cooper, Crawford, Cedar, De Kalb, Howell, Jackson, Marion, Pemiscot, Putnam, Saline, St. Charles, Scotland, Shelby, Sullivan, Webster.

The results of these investigations have been published in bulletin form, in part by the United States Department of Agriculture, co-operating with this Experiment Station, and in part by the Missouri Experiment Station.

Enough has already been learned of the crop adaptation of various soil types to suggest the kind of crops which seem to thrive best on particular soil areas.

RESULTS IN OTHER DEPARTMENTS.

Peach trees pruned according to the methods discovered by this College have been made to produce two additional crops in eight years. If this method were adopted throughout the entire State the increased wealth in eight years would amount to over twelve million dollars.

Last year the Jonathan apple orchard on the Horticultural grounds which was sprayed yielded over \$160 per acre, while unsprayed Jonathan orchards in the neighborhood had almost no marketable fruit.

As a demonstration experiment, the College of Agriculture last year sprayed one acre of Jonathan apples in a 140-acre commercial apple orchard near Columbia. This sprayed acre produced more marketable apples than the remaining 139 acres which were not sprayed.

One-eighth of an acre of asparagus on the Horticultural grounds has produced an average of \$80.00 annually for the past five years. This is at the rate of \$600 per acre for each year.

A pure bred Holstein Friesian cow, "Missouri Chief Josephine," born on the College Farm has made several world's records during the year, as follows:

In four months, 11,536.1 pounds milk.

In six months, 17,008 pounds milk.

In eight months 21,698 pounds milk.

In ten months, 24,530 pounds milk.

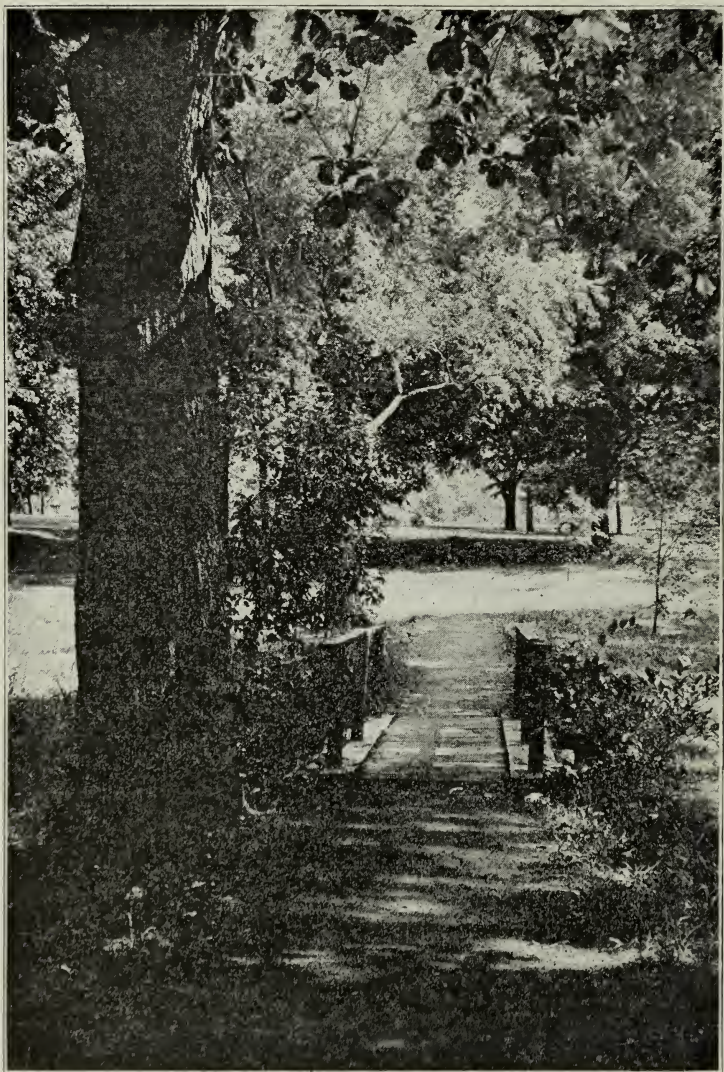
In eleven months, 25,650 pounds milk.

These are the highest records known for the periods named.

A three-year-old Jersey cow, "Pedro's Estella," bred on the College Farm, produced seven hundred and twelve pounds of butter in one year. This was the world's record for a three-year-old Jersey cow at the time the record was made.

Five Jersey cows owned by the Experiment Station have each produced more than seven hundred pounds of butter in one year. Only twenty Jersey cows in the history of the world had produced over seven hundred pounds of butter each in one year when these records were made.

Results from Co-Operative Experiments. The average yield of corn in Missouri in 1909 was 27.4 bushels per acre. The average yield of corn on the farms of twenty-five farmers, co-operating with the Agricultural Experiment Station in the same year was 48 bushels per acre. Each of these co-operators has become a practical demonstrator of the successful methods of corn growing which have been recommended by the Experiment Station.



A SUMMER VIEW ON THE MAIN CAMPUS.

THE UNIVERSITY OF MISSOURI.

The University of Missouri was located at Columbia, Missouri, in 1839, and instruction in Academic work was begun in 1841. In the course of its development the institution has found itself called upon to organize several departments of instruction and administration in response to the needs of the several vocations followed by the citizens of the State.

The present organization, with two colleges (Arts and Science, and Agricultural) and schools for professional and graduate work, was adopted May 31, 1909. The separate divisions, each of which was in some form differentiated from the rest of the institution in the year indicated, are as follows:

- I. College of Arts and Science (1839).
- II. School of Education (1867).
- III. College of Agriculture (1870).
- IV. School of Mines and Metallurgy at Rolla (1870).
- V. School of Law (1872).
- VI. School of Medicine (1873).
- VII. School of Engineering (1877).
- VIII. Graduate School (1896).
- IX. School of Journalism (1906).

In addition, special emphasis is given particular lines of work by the establishment and operation of special minor divisions, the chief of which are the Extension Division, the Agricultural Experiment Station, the Engineering Experiment Station, and the Military Department. All of these divisions are located at Columbia with the exception of the School of Mines and Metallurgy, which is situated at Rolla.

Columbia, a town of about 10,000 inhabitants, is situated near the center of the State, half way between St. Louis and Kansas City. It is reached from the east, north, and west by the Wabash Railroad and connecting lines. The Missouri, Kansas and Texas Railroad affords a direct route to Columbia to persons living on that line, and to those living on the Missouri Pacific, St. Louis and San Francisco, and other southern railroads.

The surrounding region is elevated, well drained and diversified. The University grounds comprise over seven hundred acres of undulating land in the southern part of the town and its outskirts. The main divisions of the grounds are the Quadrangle of thirty-two acres, the Horticultural grounds of thirty acres, the Physical Education grounds, and the Experiment Farm of 648 acres.

The University has the following buildings at Columbia Academic Hall, Laws Observatory, separate buildings for Chemistry, Zoology and Geology; Engineering, and Mechanic Arts; three power houses;

Medical Laboratory Building, Parker Memorial Hospital including the Busch Clinic, and an Animal Building; Agricultural Building, Horticultural Building and Green Houses, Live Stock Judging, Dairy, Farm Machinery, and Veterinary Buildings, and the Agricultural Farm Barns and Buildings; Switzler Hall (Journalism); the President's House, and the dwelling of the Dean of the College of Agriculture; Benton and Lathrop Halls (dormitories for men), Read Hall (dormitory for women), and the Gymnasium (for men). The women's Gymnasium is housed in Academic Hall, and the practice schools of the School of Education in an old dwelling belonging to the University and in a good building, originally erected for an academy.



THE COLUMNS.

The most historic spot on the University Campus.

WHERE TO WRITE FOR INFORMATION.

For further information concerning the Two-Year Winter Course in Agriculture, address,

A. J. MEYER,
Supt. of Short Courses,
University of Missouri,
Columbia, Mo.

For information concerning the regular four-year courses of the College of Agriculture, address,

F. B. MUMFORD,
Dean of the College of Agriculture,
University of Missouri,
Columbia, Mo.

For catalogue of the University and for special circulars of the Graduate School, College of Arts and Science, College of Agriculture, School of Education, School of Law, School of Medicine, School of Engineering and School of Journalism, address,

MAILING CLERK,
University of Missouri,
Columbia, Mo.

A. ROSS HILL,
President of the University.







UNIVERSITY OF ILLINOIS

PRESIDENT'S OFFICE

THE
UNIVERSITY OF MISSOURI
BULLETIN.

Volume 12, General Series 1911.

Number 1, January	Summer Session
Number 2, February	Graduate School
Number 3, March	School of Education
Number 4, April	School of Law
Number 5, May	Catalogue
Number 6, June	School of Medicine
Number 7, July	College of Arts and Science
Number 8, August	School of Journalism
Number 9, September	School of Engineering
Number 10, October	College of Agriculture (Regular Session.)
Number 11, November	College of Agriculture (Short Course.)
Number 12, December	Second Semester Courses

THE UNIVERSITY OF MISSOURI BULLETIN

GENERAL SERIES

VOLUME 13 NUMBER 10

UNIVERSITY OF ILLINOIS

ANNOUNCEMENT
OF THE
COLLEGE OF AGRICULTURE
(Regular Session)
1912-1913

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UNIVERSITY OF MISSOURI
COLUMBIA, MISSOURI
October, 1912

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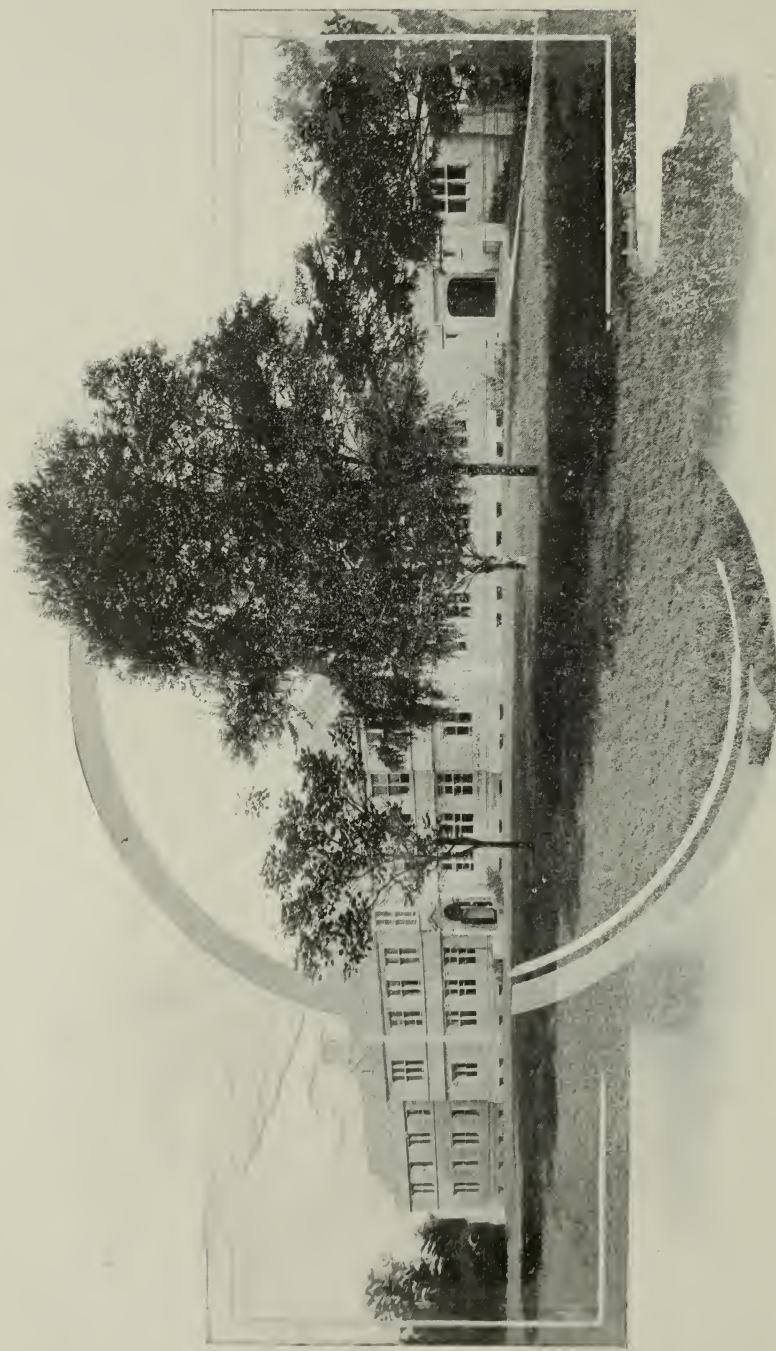
ANNOUNCEMENT
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(Regular Session)
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UNIVERSITY OF MISSOURI
COLUMBIA, MISSOURI
October, 1912

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MAIN BUILDING, COLLEGE OF AGRICULTURE

OPPORTUNITIES IN AGRICULTURE.

A man who is thoroughly well trained in agriculture has before him unlimited opportunities for a useful career. Young men who are undecided as to their future careers will find in the agricultural resources of Missouri a promising field. More than a million and a half people live on Missouri farms or are directly dependent upon agriculture for their livelihood. The vocation of farming is not crowded. Other professions are crowded. Special training for agriculture will contribute as efficiently to the success of the future farmer as special training has contributed to proficiency in engineering, law and the other professions.

The College has not been able to supply the demand for its graduates as farm managers, teachers in agricultural colleges and high schools, investigators in experiment stations, scientific aids in the United States Department of Agriculture, foresters, farmer's institute lecturers and agricultural journalists.

EDUCATION FOR AGRICULTURE.

The University of Missouri believes that the young man who is to manage a good Missouri farm is entitled to the same high grade of instruction that is offered to the man who is to become a lawyer, a physician, a preacher, or a teacher. It maintains, therefore, a four-year course in agriculture, requiring the same preparation for entrance as the other Colleges and Schools of the University. Educating men for a vocation so fundamentally important to the state is regarded by the University as a sacred obligation imposed upon it by the Federal and State Governments. Large investments in buildings and equipment have been provided for making the instruction in agriculture second to none. Many trained teachers, each an expert in his line, have been gathered in the faculty of the College of Agriculture for giving to Missourians the best available instruction in agriculture. There is no important phase of agricultural instruction which is not given at Columbia.

THE MISSOURI COLLEGE OF AGRICULTURE.

The College of Agriculture at Columbia is the only institution organized by the State of Missouri for the express purpose of training for successful agriculture. It is the function of the

College to train men and women for successful living in the open country. It accomplishes this by educating farmers, dairymen, fruit growers, grain growers, stockmen, foresters, and teachers of agricultural subjects.

During the session of 1911-12 the College of Agriculture gave some special instruction in agriculture to 2194 persons at Columbia. This number includes 1300 persons who attended the Farmers' Short Course in January. Of the total number over 1800 are now on Missouri farms practicing the better methods of agriculture taught here.

The instructional and investigational work of the College of Agriculture is carried on in seventeen buildings devoted exclusively to the more technical phases of agriculture. In addition, the students in agriculture receive instruction in each of the great buildings on the main campus of the University. More than forty teachers and investigators devote their entire time to teaching and investigating in the technical agricultural subjects.

During the year there were 794 students enrolled in the College of Agriculture. This number includes thirty-two graduate students working for advanced degrees in the various departments of the College.

FACILITIES FOR INSTRUCTION.

BUILDINGS.

Agricultural Building. A two-story stone structure with a high basement and an auditorium seating 500 persons. More than 1,000 students may be accommodated at one time in class rooms and laboratories. The building includes: offices of the Dean and Director; the State Board of Agriculture, including the State Highway Engineer and the State Veterinarian; and the Drug and Food Commissioner; the departments of agronomy, animal husbandry, agricultural chemistry, forestry, soil survey, and general agricultural library.

Horticultural Building. A stone building, two stories and a well-lighted basement with plant house and insectary, class-rooms, laboratories, offices and preparation rooms for horticulture, botany and entomology.

Dairy Building. A stone building, two stories, with cheese-curing room in basement, rooms for creamery manufacturers, cheese-making, dairy work, milk-testing laboratory, offices and class-rooms.

The chemist of the Experiment Station is provided with laboratories in the Dairy Building.

Barns, Shelters, and Live Stock Judging Pavilion. The department of animal husbandry is equipped with modern cattle barns, providing accommodations for one hundred cattle. The first story is of stone with granitoid floors. In connection is a two hundred and fifty ton stone silo. There are cattle feeding sheds, divided into fifteen lots for experimental feeding and other investigational work; a modern hog barn with concrete floors, iron pen divisions, and dipping tank; a barn for the leading pure breeds of sheep; and stock judging pavilion.

Dairy Barn. A new dairy barn, modern in every detail and having a capacity for seventy-five dairy cows was completed in 1911.

Veterinary. The veterinary department is housed in a new three-story stone building devoted exclusively to investigation and instruction in veterinary science. The building contains laboratories for anatomy, physiology, investigations in contagious and infectious diseases, the preparation of hog cholera serum, and operating rooms for clinics.

A separate building and infection pens have enabled the department to produce 140,000 doses of hog cholera serum this year.

Poultry. A two-story stone building, including general office,



IT IS THE NEW DAIRY BARN

incubator room equipped with various types of incubators, sales room, class rooms and laboratory.

The poultry department has one fifteen-pen laying and breeding house, and ten portable colony-houses. A feed house and houses for experimental work will be constructed this season. Several hundred fowls, representing the popular varieties, are kept for instructional and experimental purposes.

LABORATORIES.

Farm Machinery. A commodious stone building equipped with the latest types of steam threshers, self-binders, mowers, corn planters, hay loaders, manure spreaders and gasoline engines.

Botany. Laboratories for physiological and structural botany, and culture rooms for physiological, mycological and bacteriological work are in the Horticultural Building. They are equipped with compound and dissecting microscopes, microtomes, steam and steam pressure sterilizers, incubators, balances, precision apparatus, and glassware. The herbarium amply illustrates the local flora.

Agricultural Chemistry. The laboratory for undergraduate instruction in agricultural chemistry, located in the Agricultural Building, and the chemical laboratories of the Experiment Station in the Dairy Building, provide ample facilities for instruction and for research in animal nutrition, analysis of fertilizers, foods, feeding stuffs, detection of adulteration and artificial coloring. Opportunity is offered for a study of the provisional and official methods of the Association of Official Agricultural Chemists.

Entomology. The laboratories and insectary located in the Horticultural Building are supplied with microscopes, dissecting instruments, microtomes, breeding cages, aquaria, spraying machines, insecticides and re-agents. The museum contains collections of several thousand species of the more injurious and beneficial insects, arranged to illustrate their habits of work and life history.

Horticulture. The horticultural laboratories occupy about 3,300 square feet of forcing-space under glass, a laboratory for the propagation of dormant plants, and storage room for cuttings, bulbs, stocks, and scions. The department also has laboratories for soil examinations and investigation of special horticultural problems regarding plant growth. The out-of-door collection on the Horticultural Grounds comprises about one thousand varieties of fruits, ornamental shrubs and trees for a study of planting, pruning, cultivating and spraying.

Agronomy. There are laboratories for instructional and investigational work in agronomy, soil laboratories and laboratories

for research work. The farm crops laboratories include a judging and exhibition room for judging, grading and handling of grains, a room for storing demonstration material, and a germinating room.

Dairy Husbandry. Facilities for instruction in dairy manufactures include creamery room, equipped with power separators, churns, pasteurizers, sterilizers and butter printers; a cheese room provided with vats, cheese presses and curing room; cream separators, milk testing apparatus and churns; refrigerating plant and cold storage; a laboratory for research work carried on in co-operation with the dairy division of the U. S. Department of Agriculture; and a laboratory for instruction and investigation in dairy bacteriology.

From 500 to 1,000 pounds of butter are manufactured each week throughout the year.

Forestry. The forestry laboratory for the study of wood technology and dendrology is located in the Agricultural Building. The equipment includes a collection of the commercial woods of the country; cross and tangential sections of the trunks of trees of Missouri; an herbarium of tree species; exotic and native trees growing on the University campus; a forest nursery containing seed and transplant beds; and a tract of timber near the University for experimental planting and demonstration.

A permanent forest camp for the summer session of the Curriculum in Forestry will be established on some portion of the University Forest of 50,000 acres located in the Ozark region of southern Missouri. This camp will be used for practical instruction in lumbering, mensuration, silviculture, and forest surveying.

LIVE STOCK EQUIPMENT.

Dairy Herd. The dairy department maintains a herd of about 70 head of the Ayrshire, Jersey, Holstein and dairy Shorthorn breeds. Complete milk and butter records are kept of each cow. The student is given instruction in the breeding, care and management of dairy cattle. Several cows in this herd hold milk and butter records which rank them among the best specimens of dairy cattle ever produced.

Other Live Stock. The leading breeds of cattle, sheep, swine, and one pure breed of horses are maintained. The college owns breeding herds of Shorthorn and Hereford cattle.

Live-stock judging instruction is facilitated by the use of pure bred and grade steers, fitted for fat stock shows. These



YOU HAVE HEARD OF THESE RECORD JERSEYS

steers have won many premiums at the leading live stock shows.

Poland China, Berkshire, and Duroc Jersey breeds of swine are maintained.

Shropshire, Rambouillet, National Delaine, Hampshire and South Down breeds of sheep are represented.

A large number of cattle, hogs and sheep are purchased from time to time for investigations in feeding.

The department owns a number of registered Percheron and heavy harness horses for instruction in the judging, feeding and management of horses.

LIBRARIES.

The General Library contains 142,000 volumes. Fourteen hundred periodicals, including scientific and technical journals are received at Columbia. The Agricultural Library is located in the Agricultural Building and contains over 10,000 volumes on agricultural subjects. Included in the Agricultural Library is a complete set of the herd and flock registers of all the leading breeds of live stock in the world. A complete file of all the Experiment Station bulletins that have been published in the United States and in many foreign countries is bound in permanent form and indexed for ready reference. A large number of German and French books reporting the results of agricultural investigations in European countries are available to advanced students and investigators.

The books and periodicals belonging to the libraries of the University may be drawn by all officers and students and by others under certain conditions.

Practical Excursions.

Visits to successful farms and breeding establishments are made under the guidance of an instructor for the study of special phases of agriculture. The principles taught in the class-room are thus observed in their application to agricultural operations on well-managed farms.

WHO SHOULD ATTEND THE COLLEGE OF AGRICULTURE.

The kind of instruction offered in the College of Agriculture is of value not only to farmers and teachers of agriculture. Many of the courses offered are of great significance to all classes of people whose business activities or professional relations bring them in more or less intimate contact with rural life.

Farmers. In the College of Agriculture will be found opportunity to become acquainted with the best modern practices in agriculture. Every phase of agricultural activity receives attention in the curriculum of the institution.

Dairymen. Those engaged in dairying who hope to attain the largest measure of success in their vocation must have a knowledge of many subjects that cannot be secured outside of an agricultural college. Dairy farming is largely dependent upon an accurate knowledge of many important details. This knowledge is given by the College of Agriculture.

Fruit Growers. The principles and practices of successful orcharding are taught. A systematic training in horticulture in the College of Agriculture may save years of costly experience to the orchardist.

Country Teachers. Efficiency in teaching may be greatly increased by a knowledge of agriculture. There is a demand among farmers for some instruction in agricultural subjects. Special courses in agriculture are given for the benefit of teachers. These may be taken either in the regular or in the summer session.

Country Lawyers. Any man whose professional work has to do largely with cultivators of the soil can add largely to his efficiency by a knowledge of the principles governing the practice of agriculture. More and more professional men are taking an active interest in the campaign for rural betterment.

County Superintendents. In an agricultural state like Missouri, a county superintendent of schools occupies an important and influential position, not only in relation to the development of the schools but to the development of the social and intellec-

tual life of the people themselves. In the future the county superintendent who is ambitious to become a leader among his people must know more about agriculture.

Editors of Country Newspapers. Some of the progressive country newspapers of Missouri are giving to their readers high class agricultural matter. The most prosperous and thriving country newspapers are those devoting a large share of attention to the interests of the farmers who make up the subscription list of these papers. The country newspaper editor who secures a training in agriculture will be able to make his paper a force for the betterment of local conditions.

Specialty Farmers. Many persons desire a special training in a restricted field. The College offers special opportunities to men who wish to take a large amount of technical work in poultry keeping, fruit growing, landscape gardening, dairy farming, dairy manufacturing, veterinary medicine, forestry, horse, cattle, sheep and swine production.

Every One Interested in Country Life. Opportunities will be found in the College of Agriculture for gratifying the love of all that pertains to the country.

AGRICULTURE AND HOME ECONOMICS.

Attention is called to the special curriculum in Agriculture and Home Economics which has been arranged for the benefit of young women in the country who desire to have a knowledge of modern methods of agriculture. This course is correlated with the work in Home Economics and it is possible to secure a very complete training in the latter subject while pursuing courses in Agriculture. The agricultural subjects offered to women are largely in the departments of agronomy, horticulture, botany and poultry husbandry.

ADMISSION

Fifteen units, the equivalent of a four-year high school course, are required for admission to the four-year college course in Agriculture. A unit is the equivalent of a high school subject pursued five periods a week for at least thirty-six weeks.

Students intending to enter the College of Agriculture are urged to offer units in science; if only one science is taken, it is recommended that it be physics. Three of the units offered must be in English, and one in algebra.

SUBJECTS ACCEPTED FOR ADMISSION.

The subjects in which entrance units may be offered, the minimum and the maximum number of units that may be offered in each subject, and the number of units required in certain subjects for each College or School, are presented in the table given on the following page.

The University will admit without examination such graduates of an accredited school as offer proper credentials of the fact that they have completed the subjects required for entrance. A person who wishes to offer credits in place of an entrance examination in any subject should have them certified to by the proper official of the school in which the credits were made. Blank forms for such certificates will be furnished by the Dean of the University Faculty. These certificates should be sent as soon as possible to the Dean of the University Faculty. The Dean will then notify the student that his credits are approved or that he will be required to take entrance examinations in the respective subjects.

Applicants for admission who are deficient in a small portion of the requirements may be admitted conditionally at the discretion of the Dean of the University Faculty.

All prospective students should write to the Dean of the University Faculty, Columbia, Missouri, for further information in reference to admission.

SPECIAL STUDENTS.

Mature men and women may be admitted to the College of Agriculture for special study in such subjects as they are prepared to pursue with profit to themselves. Such students must be at least twenty-one years of age. Special students are not candidates for degrees and cannot become such until they have fulfilled all requirements for admission. An application for admission as a special student should be made to the Dean of the University Faculty. If the Dean approves the application he will issue the candidate an entrance card as a special student.

The minimum and maximum number of units that may be offered in each subject for admission are indicated on the following page:

Subjects.	Max.	Min.	Required in the Several Divisions.						
			Arts and Science....	Agriculture..	Education...	Law.....	Medicine....	Engineering.	Journalism...
English	4	3	Fifteen units including the seven units listed above.	Two units in one foreign language.	3	Two years of college work in addition to a four years' high school course or an equivalent.	Two years of college work, as specified, in addition to the entrance requirements to the College of Arts and Science.	Two years of college work, as specified, in addition to a four years' high school course or an equivalent.	Two years of college work, as specified, in addition to a four years' high school course or an equivalent.
Algebra	2	1			1				
Plane Geometry	1	1			1				
Solid Geometry	$\frac{1}{2}$	$\frac{1}{2}$							
Plane Trigonometry..	$\frac{1}{2}$	$\frac{1}{2}$							
Advanced Arithmetic.	$\frac{1}{2}$	$\frac{1}{2}$							
History	4	1							
Civil Government....	$\frac{1}{2}$	$\frac{1}{2}$							
Latin	4	2							
Greek	3	2							
German	3	2							
French	3	2							
Spanish	3	2							
Physics	2	1							
Chemistry	2	1							
General Biology.....	1	1							
Zoology	2	1							
Botany.....	2	1							
§Physiology	1	1							
Physical Geography..	1	1							
Agriculture	1	1							
Music	1	1							
Drawing	1	1							
*Manual Training....	2	1							
*Domestic Science and Art	2	1							
*Economics	$\frac{1}{2}$	$\frac{1}{2}$							
*Commercial Geogra- phy	$\frac{1}{2}$	$\frac{1}{2}$							
*Bookkeeping	1	1							

§In cases where the study of physiology has been preceded by a year's study of general biology, botany or zoology.

*The maximum amount of commercial and industrial subjects accepted is four units.

†Students in Medicine must offer two units in Latin to satisfy the college entrance requirements in foreign language.

ADMISSION OF GRADUATES OF JUNIOR COLLEGES.

All students who have graduated from junior colleges in this or other states may enter the junior year of the College of Agriculture. If the student has taken work in science in the College he can complete the technical requirements in the College of Agriculture in approximately two years. Many Missouri students are embracing this opportunity to complete their education and secure instruction in Agriculture.

SOPHOMORES FROM STANDARD COLLEGES.

The curriculum of the College of Agriculture is so arranged that students who have completed their sophomore year in a standard college may secure credit for all the work done and these credits will be accepted for a part of the requirements for the degree of Bachelor of Science in Agriculture. If such students have had some work in science in their college course, it is possible to complete the requirements for Bachelor of Science in Agriculture in two years. An increasingly large number of college students are taking advantage of this opportunity.

SCHOLARSHIPS.

During the session 1912-13 there will be available to undergraduate students in Agriculture, four Armour Scholarships each of which pays \$250.00 in cash. These were won by the Live Stock Judging Team at the Chicago International Live Stock Exposition in 1911. It is Mr. Armour's wish that they be awarded to needy students who are paying their own way through the College.

The Missouri State Board of Agriculture offers two scholarships of \$50 each, one to the winner of the Live Stock Judging Contest and one to the winner of the Corn Judging Contest held in connection with the Missouri State Fair in 1912. It is probable that other scholarships will be announced later.

FELLOWSHIPS FOR GRADUATE STUDENTS.

The greatest need in the campaign for rural betterment is wise leadership. The fundamental problem of supplying the food of a nation is a big problem. It involves not only the fundamental problem of conservation of soil fertility but social and economic questions as well. The men who are to lead in the solu-

tion of problems so fundamentally important must be trained for leadership.

The Missouri College of Agriculture is emphasizing graduate instruction in Agriculture. Wise leadership requires capacity for independent thought and original research. All students who intend to continue as teachers and investigators in colleges and in experiment stations are advised to continue their studies in the Graduate Division of the University.

To encourage graduate study the College offers eleven Research Fellowships paying \$250.00 each a year. Graduates of standard colleges are eligible for these fellowships. Further information in reference to the fellowships may be had by writing to the Dean of the College of Agriculture.

FEES AND EXPENSES.

Tuition in the College of Agriculture is free. An incidental and library fee of \$5.00 for each semester is required of all Missouri students. The fee for students from outside the state is \$10.00 a semester. In laboratory courses a deposit is required to pay for the material used and damage to scientific apparatus.

The necessary expenses for the freshman year are estimated in the table given herewith:

Estimated Expenses of Freshman Year:

Library and incidental fee.....	\$10.00
Room rent and room furnishings.....	35.00
Dining room permit and initiation fee.....	23.00
Caution deposit	8.00
Board for forty weeks.....	60.00
Books, stationery and school supplies.....	25.00
Laboratory deposits:	
Chemistry, \$5.00; Botany, \$5.00; Dairy, \$5.00;	
Chemistry, \$5.00	20.00
Laundry, \$15.00; Incidentals, \$25.00.....	40.00
<hr/>	
\$221.00	

The above estimate does not include cost of travel, clothing or entertainments, and assumes that the student will live in the university dormitories. The cost of board and room out in town will be higher.

The following interesting table which was prepared by the Dean of the School of Education gives the actual expenses of eighteen senior men and women of the University:

Itemized Statement of Expenses of 9 Men and 9 Women for the Regular Session of 1909-10.

Men	Tuition and Fees	Board	Rent	Laundry	Books and Stationery	Clothing	Subscriptions and Dues	Amusements	Miscellaneous	Total	Earned	Amount could have saved by economizing
1	\$15	\$135	\$45	\$18	\$15	\$70	\$10	\$150	\$25	\$483	\$200	\$
2	17	108	29	7	25	115	45	20	35	401	63	125
3	12	145	100	13	12	40	12	3	8	333		70
4	10	75	50	25	12	70	8	20	30	300	250	50
5	10	100	50	15	15	50	10	25	25	290	100	96
6	10	115	35	15	10	50	10	20	20	285	10	25
7	25	112	45	15	15	30	10	10	10	267		
8		77	54	14		14	10	5	56	230	250	
9	5	80	48	10	12	60	5		5	225	60	
Women												
1	10	144	57	35	18	150	5	75	36	530		150
2	60	148	54	19	15	135	3	5	10	449		
3	5	135	50	20	25	100	10	5	50	400		25
4	5	150	50	30	18	75	10	20	20	378		100
5	13	144	54	30	25	75	10	5		356	15	50
6	10	135	54	20	15	75	10	5	10	334		25
7	10	150	51	25	10	50	10	5	10	321		
8	10	140	40	20	15	50	5	10	10	300	250	
9	5	135	45	20	15	50	20	8	27	275		



CENTRAL POULTRY HOUSE

PAYING ONE'S WAY THROUGH THE UNIVERSITY.

It is variously estimated that from twenty to thirty per cent of the students in the College of Agriculture are paying all or a considerable portion of their expenses by working while attending the University. Such students work for the various departments of the College in caring for the live stock, assisting in the Dairy Department, working for the Experiment Station, helping in the preparation of hog cholera serum and giving assistance in pruning, spraying and planting on the Horticultural grounds. About two hundred students were given a greater or less amount of work in these various departments during the past year.

Students also find employment in Columbia caring for fur-races, waiting on tables, clerking and numerous other ways.

DEGREES.

The degree of Bachelor of Science in Agriculture is conferred upon all students completing the four-year curriculum in Agriculture for men and the four-year curriculum in Agriculture and Home Economics for women.

The Degree of Bachelor of Science in Forestry is conferred upon all students completing the four-year curriculum in Forestry. The degree of Master of Forestry is conferred upon all students completing the five-year curriculum in Forestry.

The Degree of Master of Arts is conferred upon students by the Graduate School for one year's graduate study in any of the departments of the College of Agriculture.

The Degree of Doctor of Philosophy is conferred upon students in the Graduate School who have devoted not less than three years of advanced study to some special branch and have attained exceptional proficiency in original research.

CURRICULA IN THE COLLEGE OF AGRICULTURE.

A. Four year curriculum in Agriculture for men, leading to the degree of Bachelor of Science (B. S.) in Agriculture. (See below.)

B. Four year curriculum in Agriculture and Home Economics for women, leading to the degree of Bachelor of Science (B. S.) in Agriculture. (See p. 21.)

C. Five year curriculum in Forestry, leading to the degree of Master of Forestry (M. F.) Upon the completion of the first four years of this curriculum the degree of Bachelor of Science (B. S.) in Forestry is conferred. (See p. 22.)

D. Two-Year Winter Course in Agriculture. (See p. 25.)

E. Short Course for Women. (See p. 27.)

F. A Farmers' Short Course in Agriculture is offered each year in January at Columbia and several Branch Short Courses in Agriculture are given in different localities in Missouri. (See p. 28)

A. FOUR YEAR CURRICULUM IN AGRICULTURE FOR MEN.

All students who are candidates for the degree of Bachelor of Science (B. S.) in Agriculture must satisfactorily complete 123 hours of work in addition to the requirement in military science and physical training. Candidates for graduation who matriculate without having had adequate farm experience, are required to devote the equivalent of two summer vacations to practical work on an approved farm.

The schedule printed below includes the number of hours and the subjects prescribed for the degree in agriculture. Where electives are indicated the student is permitted to select other university subjects.

CURRICULUM.*

Freshman—Group I.

First Semester.		Second Semester.	
Agronomy 1a	3 hrs.	Animal Husbandry 1....	2 hrs.
Animal Husbandry 1....	3 "	Chemistry 25b	5 "
Botany 1a	5 "	Dairy Husbandry 1b....	3 "
Chemistry 4a or 6a.....	5 "	English 1b	5 "
<hr/>		<hr/>	
16 hrs.		15 hrs.	

Freshman—Group II.

First Semester.		Second Semester.	
Animal Husbandry 1....	3 hrs.	Agronomy 1b	3 hrs.
Dairy Husbandry 1a....	3 "	Animal Husbandry 1....	2 "
English 1a	5 "	Botany 1b	5 "
Horticulture 1a and 2a..	5 "	Chemistry 4b or 6b.....	5 "
<hr/>		<hr/>	
16 hrs.		15 hrs.	

Sophomore—Group I.

First Semester.		Second Semester.	
Agronomy 2a	5 hrs.	Agricultural Chemistry 1b	5 hrs.
Organic Chemistry 5a...	3 "	Botany 3b	3 "
Veterinary Science 1a...	3 "	Horticulture 1b and 2b..	5 "
Zoology	5 "	Veterinary Science 2b...	3 "
<hr/>		<hr/>	
16 hrs.		16 hrs.	

Sophomore—Group II.

First Semester.		Second Semester.	
Agronomy 2a	5 hrs.	Organic Chemistry 5b...	3 hrs.
Botany 3a	3 "	Veterinary Science 2b...	3 "
Chemistry 25a	5 "	Zoology 1b	5 "
Veterinary Science 1a...	3 "	Elective	5 "
<hr/>		<hr/>	
16 hrs.		16 hrs.	

*The students during the freshman and sophomore years are divided into two groups. The subjects taken by each group are the same but are taken in a different order.

Junior.

First Semester.		Second Semester.	
Agricultural Chemistry 1a	5 hrs.	Agronomy 100b	5 hrs.
Animal Husbandry 100a.	3 "	Animal Husbandry 101b.	3 "
Botany 100a or Veterinary Science 3a	3 "	Horticulture 100 or 102..	5 "
Horticulture 100 or 102..	2 "		
			13 hrs.
13 hrs.			

Senior.

First Semester.		Second Semester.	
Entomology 2a	3 hrs.	Elective	15 hrs.
Geology 4a	3 "		
Elective	9 "		
15 hrs.			

B. FOUR YEAR CURRICULUM FOR WOMEN.**Agriculture and Home Economics.**

The College of Agriculture offers an excellent course for women who may be interested in certain phases of agriculture and in home economics. This curriculum includes a larger amount of instruction in plant studies and a less amount in such subjects as animal husbandry and veterinary science. The Degree of Bachelor of Science in Agriculture is given for the completion of 120 hours' work as indicated in the table below.

CURRICULUM.**Freshman.**

First Semester.		Second Semester.	
Chemistry 4a or 6a	5 hrs.	Chemistry 25b	5 hrs.
English 1a	5 "	Home Economics 1b	5 "
Horticulture 1a and 4a	5 "	Botany 1b	5 "
15 hrs.		15 hrs.	

Sophomore.

First Semester.		Second Semester.	
Chemistry 5a	3 hrs.	Botany 3b	3 hrs.
Agronomy 1a	3 "	Dairying 1b	3 "
Horticulture 8	2 "	Horticulture 8	2 "
English 2	2 "	English 2	2 "
Elective	5 "	Elective	5 "
15 hrs.		15 hrs.	



THEY ARE BUSY SEWING

Junior.

First Semester.		Second Semester.	
Home Economics 101a...	3 hrs.	Zoology 1b	5 hrs.
Elective	12 "	Elective	10 "
<hr/>		<hr/>	
15 hrs.		15 hrs.	

Senior.

First Semester.		Second Semester.	
Elective	15 hrs.	Elective	15 hrs.

C. FIVE YEAR CURRICULUM IN FORESTRY.

The five year curriculum in Forestry trains men for the profession of Forestry. Its graduates are fitted for work with the United States Forest Service, with state forestry departments, and for private forestry.

Nature of the Curriculum:

The first three years of work are devoted primarily to the sciences underlying the profession. The theoretical principles of forestry are studied at the University, but the practical application of those principles is carried out on the University Forests aggregating 50,000 acres in the Ozark Region. "A Forest Camp" during the Summer Session of the University is established on this forest

for eight weeks, where the following subjects, required of third year students in Forestry, are given: Forest mensuration, silviculture, lumbering, and forest surveying. Tents, cots and general camp equipment are furnished for this camp, but each student must provide his own blankets and personal outfit. During the last eight weeks of the spring semester of the fifth year of the course, students will make a working plan of some portion of this forest.

Since most of the subjects outlined in the first two years of the curriculum are pursued in the College of Arts and Science, students who have completed 60 credit hours in that College will be admitted in Forestry at the beginning of the third year. Graduates of collegiate institutions who have had preparation as listed below will be admitted at the beginning of the Summer Forestry Camp as candidates for degree of Master of Forestry:

One year of college botany and at least one college course in chemistry, geology, economics, physics, zoology, mathematics through trigonometry, and a reading knowledge of French or German.

Degrees:

The degree of Master of Forestry is conferred on those students who have successfully fulfilled all the requirements of the five year curriculum. The degree of Bachelor of Science in Forestry is conferred on those students who have fulfilled all the requirements in the Course in Forestry at the end of the fourth year.

CURRICULUM.

First year.

English Aa	5	Botany 1b	5
Chemistry 4a Inorganic.....	5	Chemistry 5b Organic.....	3
Forest 1 Field Dendrology.	1	Forest 1 Field Dendrology.	1
German 1a or French 1a....	5	German 2b or French 2b....	5
		Horticulture 1b	2

Second year.

Botany 100a Physiological..	5	Forest 2b Principles.....	3
Geology 1a	5	Geology 4b Mineralogy.....	3
Mathematics 3a	5	Manual Arts 1b Shop work.	4
		Manual Arts 5b Care of Tools	1
		Physics 1b	5

Third year.

Geology 6a Physiography		Civil Engineer 101b.....	2
and Soils	5	Economics 1b	5
Mechanical Drawing 7a.....	3	Entomology 1b	3
Mechanical Engineer 131a...	2	Forest 3b Silvics.....	5
Zoology 1a	5	Mechan. Engineer 124b.....	1

Summer Forest Camp.

Forest s4 Mensuration.....	2
Forest s5 Silviculture.....	2
Forest s6 Lumbering.....	2
Forest s7 F. Surveying.....	2

Fourth year.

Botany 2a Mycology.....	3	Botany 108b Tree Diseases..	3
Civil Engineer 104a.....	3	Forest 101b F. Products.....	2
Forest 100a Dendrology.....	4	Forest 103b F. By-products.	1
Polit. Sci. 1a Amer. Govt....	5	Forest 104b F. Practice.....	3
Topographic Drawing 3a....	1	Forest 105b Seeding and Planting	3
		Forest 106b Wood Technol- ogy	3
		Meteorology 1b	1



SOME STUDENT FORESTERS

Fifth year.

Entomology 112a F. Entomology	2	<i>To April first</i>	
Forest 107a F. Economics..	2	An. Husb. 104b Grazing.....	2
Forest 108a Forest Law....	3	Forest 112b Working plans.	1
Forest 109a Policy and Regulation	4	Forest 113b F. History.....	2
Forest 110a Valuation.....	2	Forest 114b Care of Trees...	3
Forest 111a Seminar.....	1	<i>April first to June first.</i>	
Law Business Law.....	2	Forest 115b Investigations..	2
		Forest 116b Management....	2

D. TWO-YEAR WINTER COURSE IN AGRICULTURE.

A shorter course in Agriculture begins November 1 and continues for four months during the winter. It is the purpose of this course to provide an opportunity for young men who cannot complete the regular four years collegiate course. The Two-Year Winter Course offers the largest amount of practical instruction that it is possible to give in the time scheduled. Any person over 16 years of age may enter this course without examination. All persons completing the subjects indicated in the schedule below will be awarded a certificate indicating that they have completed all the requirements of the Two-Year Winter Course in Agriculture. A special announcement is published describing the plan and purpose of this course and may be had upon application to the Dean of the College of Agriculture.

The following schedule of studies is offered in the years and during the terms indicated:

SCHEDULE OF STUDIES FOR TWO-YEAR WINTER COURSE IN AGRICULTURE.

First Year.

First Term.	Lecture hours.	Laboratory hours.
Grain Judging	21	21
Farm Dairying	14	14
Feeds and Feeding.....	21	.....
Live Stock Judging.....	.....	21
Breeds of Live Stock.....	14	.....
Shop Work or.....	.....	14
Parliamentary Practice .....	.....	14
Second Term.		
Veterinary Science	14	14
Tillage and Cultural Methods.....	14	7
Animal Breeding	21	.....
Orcharding and Small Fruits.....	14	14
Soils of Missouri.....	14	.....
Live Stock Judging.....	.....	21
Shop Work or.....	.....	14
Landscape Gardening	14	7

Second Year.

First Term.		
Propagation and Cultivation of Plants.....	14	14
Veterinary Science	14	14
Injurious Insects	14	7
Live Stock Production.....	21	.....
Crop Production and Crop Rotation.....	14	7
Farm Accounts .....	.....	14
Soil Management	14	.....
Second Term.		
Soil Fertility	21	7
Farm Management	14	.....
Milk Production	21	.....
Stock Judging	7	21
Farm Buildings and Machinery.....	14	14
Poultry Husbandry	7	14
Farm Accounts .....	.....	14

E. SHORT COURSE FOR WOMEN.

The Short Course for Women comprises eight weeks of work and is given during the months of January and February each winter. Every facility is provided for securing, in the time given, the largest possible amount of practical information relating to the care and management of the home and to those agricultural subjects which have a more or less direct bearing upon the household.

The following subjects are offered: Food work; hygiene and sanitation; sewing; laundry work; home care of the sick; propagation and cultivation of plants; orcharding and small fruits; landscape gardening; poultry husbandry; farm dairying.

Students are permitted to elect any of these subjects.

There is no requirement for entrance to this course except that a student must be sixteen years of age or older. The total expenses of the course need not exceed \$60.00. A probable estimate of expenses is as follows:

Fees	\$ 8.50
Room (with room-mate).....	10.00
Board	30.00
Laundry	4.00
<hr/>	
Total	\$52.50



WHERE HOME ECONOMICS IS TAUGHT

F. FARMERS' SHORT COURSE.

During the second week in January each year the College offers a short course in Agriculture for farmers in connection with the Farmers' Week Program arranged in co-operation with the State Board of Agriculture. In this course special lectures and demonstrations in soils and farm crops, animal husbandry, dairying, horticulture and poultry farming are given in the class rooms, laboratories and live stock judging pavilion belonging to the University. Farmers to the number of 1300 were enrolled for this course in 1912. Among the farmers attending there were representatives from fourteen states. This course will be given again from January 13-17, 1913.

STATEMENT OF COURSES.

Explanation:

Courses designated by a number with the letter **a** attached thus: 2a, 120a, are given in the first semester only. Those designated by a number with the letter **b** attached, thus, 2b, 111b, are given in the second semester only. Those designated merely by a number are continuous courses, and are given both semesters. **Arabic numerals in parenthesis indicate the number of hours credit in a semester.** Courses numbered from 1 to 99 are for under-classmen, from 100 to 199 for upper-classmen, and from 200 to 299 for graduates. For schedule of days and hours, application should be made to the Registrar after August 1.

A full description of courses will be found in the annual catalogue.



LEARNING THE POINTS OF A GOOD DAIRY COW

AGRICULTURAL CHEMISTRY.

1a and 1b. **Agricultural Chemistry.** (5). Mr. Trowbridge, Mr. Moulton.

102. **Advanced Agricultural Chemistry.** Mr. Trowbridge, Mr. Moulton, Mr. Haigh.

201. **Seminary.** (1). Mr. Trowbridge.

202. **Research in Agricultural Chemistry.** Mr. Trowbridge, Mr. Moulton, Mr. Haigh.

203a. **Chemistry of Proteins.** (3). Mr. Trowbridge.

AGRONOMY.

1a and 1b. **Grain Judging.** (3). Mr. Hackleman, Mr. Hendrix, Mr. Douglass.

2a. **Crop Production.** (5) Mr. Hutchison, Mr. Hackleman.

3b. **Soil Physics and Soil Fertility.** (5). Mr. Miller, Mr. LeClair.

4a. **Farm Architecture.** (3). Mr. Miller, Mr. Hendrix.

5b. **Farm Engineering.** (3). Mr. Miller, Mr. Hendrix.

100b. **Field Crop Management.** (2). Mr. Hutchison, Mr. Hackleman.

101b. **Special Grain Judging.** Mr. Hackleman, Mr. Hendrix, Mr. Douglass.

102b. **Cereal Breeding.** (2). Mr. Miller, Mr. Hackleman.

103a. **Soil Management.** (5). Mr. Miller, Mr. LeClair.

200b. **Soil Investigations.** (3). Mr. Miller, Mr. LeClair.

201. **Special Investigations.** Mr. Miller.

202. **Seminary.** (1). Mr. Miller.

ANIMAL HUSBANDRY.

1. **Elementary Live Stock Judging.** (First semester, 3; second semester, 2). Mr. Allison, Mr. Weaver, Mr. Hackedorn, Mr. Simpson.

2a. **Breeds of Live Stock.** (3). Mr. Allison.

3b. **Beef Production.** (2). Mr. Allison.

4b. **Sheep Production.** (1). Mr. Hackedorn.

5b. **Pork Production.** (1). Mr. Weaver.

6b. **Horse Production.** (1). Mr. Trowbridge.

7b. **Advanced Live Stock Judging.** (2). Mr. Trowbridge.

100a. **Animal Nutrition.** (3). Mr. Allison.

101b. **Animal Breeding.** (3). Mr. Trowbridge.

- 102a. **Advanced Live Stock Judging.** (3). Mr. Trowbridge.
- 103b. **Stock Farm Management.** (2). Mr. Trowbridge.
- 104b. **Grazing.** (2). Mr. Allison.
- 200. **Seminary.** (2). Mr. Trowbridge, Mr. Allison, Mr. Mumford, Mr. Weaver, Mr. Hackedorn.
- 201. **Experimental Feeding.** Mr. Trowbridge, Mr. Allison, Mr. Mumford.
- 202. **Research in Animal Husbandry.** Mr. Mumford, Mr. Trowbridge, Mr. Allison.
- 203. **Animal Breeding.** Mr. Mumford, Mr. Trowbridge.
- 204. **Zoometry.** Mr. Trowbridge.

BOTANY.

- 1a and 1b. **General Botany.** (5). Mr. Durand, Mr. Bennett, Miss Keene.
- 3a and 3b. **General Bacteriology.** (3). Mr. Reed, Mr. Gainey.
- 100a. **Plant Physiology.** (3). Mr. Reed.
- 103b. **Soil Bacteriology.** (3). Mr. Gainey.
- 108b. **Diseases of Forest Trees.** (3). Mr. Reed.

CHEMISTRY.

- 4a and 4b, or 6a and 6b. **General Inorganic Chemistry.** (5). Mr. Schlundt, Mr. Morland, Mr. Dutcher, Mr. Spohrer, Mr. Thomson, Mr. Schaefer, Mr. Knudson, Mr. Bishop.
- 25a and 25b. **Analytical Chemistry.** (5). Mr. Brown, Mr. Gibson, Mr. Carothers.
- 5a and 5b. **Elementary Organic Chemistry.** (3). Mr. Calvert, Mr. Dutcher, Mr. Schaefer, Mr. Knudson.

DAIRY HUSBANDRY.

- 1a and 1b. **Elements of Dairying.** (3). Mr. Rinkle, Mr. White, Mr. Woodward.
- 100b. **Milk Production.** (4). Mr. Eckles, Mr. White, Mr. Woodward.
- 101. **Dairy Bacteriology.** (2). Mr. Eckles.
- 102a. **Cheese Making.** (2). Mr. Rinkle.
- 103a. **Judging Dairy Cattle.** (1). Mr. White, Mr. Woodward.
- 105a. **Dairy Manufactures.** (2). Mr. Rinkle, Mr. Wobus.
- 201. **Seminary.** (1). Mr. Eckles.
- 202. **Research in Dairy Husbandry.** Mr. Eckles.
- 203. **Special Investigations in Composition of Milk.** Mr. Palmer.



THE FARMER SHOULD KNOW INSECT ENEMIES

204. **Research in Dairy Manufacturers.** Mr. Eckles, Mr. Rinkle.
205. **Dairy Manufactures.** Mr. Rinkle.

ENGLISH.

- 1a and 1b. **English Composition and Rhetoric.** (3). Mr. Miller.
- Aa and Ab. **English Composition.** (3).
2. **Introduction to the Study of Literature.** (2). Mr. Fairchild, Mr. Tisdell, Mr. Richardson, Mr. Burrowes.

ENTOMOLOGY.

- 1b. **General Entomology.** (3). Mr. Haseman.
- 2a. **Economic Entomology.** (3). Mr. Haseman.
- 103a. **Elementary Morphology.** (2). Mr. Haseman.
- 104b. **Elementary Systematic Entomology.** (2). Mr. Haseman.
- 109b. **Apiary Culture.** (2). Mr. Haseman.
- 110b. **Advanced Economic Entomology and Insectary Methods.** (2). Mr. Haseman.

- 111a. **Morphology, Histology, and Development of Insects.**
(3). Mr. Haseman.
200. **Research.** Mr. Haseman.

FARM MANAGEMENT.

- 5a. **Farm Accounts.** (3). Mr. Johnson.
10b. **Farm Organization.** (3). Mr. Doane.
112b. **Farm Administration.** (3). Mr. Doane.
114. **Seminary.** Mr. Doane, Mr. Johnson.
201. **Investigation of Types of Farming.** Mr. Doane, Mr. Johnson.
202. **Investigation of Cost of Production and the Distribution of Labor.** Mr. Doane, Mr. Johnson.
207. **Investigation of Systems of Farm or Rural Practices and Organizations.** Mr. Doane, Mr. Johnson.

FORESTRY.

1. **Field Dendrology.** (1). Mr. Ferguson.
2b. **Principles of Forestry.** (3). Mr. Howard.
3b. **Silvics.** (5). Mr. Ferguson.
s4. **Forest Mensuration.** (2). Mr. Ferguson.
s5. **Silviculture.** (2). Mr. Ferguson.
s6. **Lumbering.** (2).
s7. **Forest Surveying and Engineering.** (2). Mr. Ferguson.
100a. **Dendrology.** (4). Mr. Ferguson.
101b. **Forest Products.** (2).
103b. **Forest By-Products.** (1).
104b. **Forest Practice.** (3). Mr. Ferguson.
105b. **Seeding and Planting.** (3). Mr. Ferguson.
106b. **Wood Technology.** (3).
107a. **Forest Economics.** (2). Mr. Howard.
108a. **Forest Law.** (3).
109a. **Forest Policy and Regulation.** (4). Mr. Ferguson.
110a. **Valuation.** (2). Mr. Ferguson.
111a. **Forest Seminar.** (1).
112b. **Working Plans.** (1). Mr. Ferguson.
113b. **Forest History and Administration.** (2).
114b. **Care of Trees and Parks.** (3).
115b. **Forest Investigations.** (2).
116b. **Field Work in Forest Management.** (2).

GEOLOGY.

- 2a. **Geology of Soils.** (3). Mr. Marbut.
108b. **Soils of the United States.** (3). Mr. Marbut.

HORTICULTURE.

- 1a and 1b. **Plant Propagation.** (2). Mr. Howard, Mr. Chandler.
2a and 2b. **Vegetable Gardening.** (3). Mr. Whitten.
3a and 3b. **The Evolution of Cultivated Plants.** (2). Mr. Whitten.
100. **Fruit Production.** (2). Mr. Chandler.
102. **Landscape Gardening.** (2). Mr. Major.
103. **Floriculture.** (1). Mr. Major.
104. **Fruit Judging.** (1). Mr. Howard.
105. **Advanced Pomology.** (3). Mr. Whitten.
106. **Olericulture.** (3). Mr. Whitten.
107. **Ornamental Plants.** (1 to 3). Mr. Major.
108. **Elementary Landscape Design.** (3). Mr. Major.
109. **Special Problems.** Mr. Whitten, Mr. Howard, Mr. Chandler, Mr. Major.
200. **Special Investigation.** Mr. Whitten, Mr. Howard, Mr. Chandler, Mr. Major.

HOME ECONOMICS.

- 1a or 1b. **Introduction to Home Economics.** (5). Miss Stanley.
101a. **House Sanitation.** (3). Miss Stanley.

AGRICULTURAL JOURNALISM.

- 10a and 10b. **Agricultural Journalism.** (3). Mr. Ross.

METEOROLOGY.

- 1b. **Meteorology.** (1). Mr. Reeder.

POULTRY HUSBANDRY.

- 1a. **Elementary Poultry Raising.** (3). Mr. Kempster.
2b. **Elementary Poultry Raising.** (3). Mr. Kempster.
3a. **Feeding Practice.** (2). Mr. Kempster.

- 4a. Poultry Judging. (3). Mr. Kempster.
- 5b. Poultry Farm Management. (3). Mr. Kempster.
- 6b. Incubating and Brooding Practice. (3). Mr. Kempster.

RURAL SOCIOLOGY.

- 115a. Rural Sociology. (2). Mr. Parmelee.

VETERINARY SCIENCE.

- 1a. Veterinary Anatomy. (3). Mr. Backus.
- 2b. Veterinary Physiology. (3). Mr. Connaway, Mr. Backus.
- 3a. Veterinary Medicine and Surgery. (3). Mr. Backus.
- 104. Topographic Veterinary Anatomy. Mr. Connaway.
- 105b. Veterinary Medicine. (3). Mr. Backus.
- 106a. Veterinary Surgery and Obstetrics. (3). Mr. Backus.
- 107. Contagious, Infectious and Parasitic Diseases of Farm Animals. (3). Mr. Connaway.
- 209. Investigation. Mr. Connaway.

ZOOLOGY.

- 1a and 1b. General Zoology. (5). Mr. Curtis.

ACTIVITIES OF THE COLLEGE OF AGRICULTURE.

STUDENT ACTIVITIES.

The agricultural students maintain numerous thriving organizations founded for the purpose of promoting various important phases of college life.

The Agricultural Club:

This union of all the agricultural students in the University has been a power for good in promoting college spirit and loyalty to the agricultural department. The organization has worked unselfishly for the best good of all and is worthy of the active support of every agricultural student.

The College Farmer:

The Agricultural College paper is published monthly and its excellent management deserves great credit for the uniformly high character of this publication. The purpose of the paper is to present reliable articles on agricultural subjects and to bring to the attention of the farmers and others the work of the College and Station. The editors and managers are elected annually by the Agricultural Club.

The County Fair:

Once a year in April the agricultural students give a county fair. This event calls for the display of considerable ability in



THE COUNTY FAIR IS A GET TOGETHER DAY

organization and is useful in stimulating the ingenuity of individual students. A live stock, agricultural, and horticultural display divides attention with more recreative features provided by the students.

Colman Literary Society:

Public speaking is encouraged in this organization. The membership is limited and the work is of a high order of excellence.

The 1913 Debating Society:

This society was formed to train men in public debating and it has been of great value to the students who participate. Members of the faculty assist in directing the work of this club.

The Grange:

The interests and responsibilities of the Agricultural student do not end with his immediate surroundings in College. He justly feels that he owes a duty to the farming class to which he belongs. In the Grange faculty and students meet and discuss the broader phases of agriculture which are of interest to them as farmers rather than students.

Alpha Zeta and Delta Theta Sigma:

These are honorary societies whose membership is limited to students who attain high intellectual rank as students. It is considered an honor to be elected to membership in these associations.

Young Men's Christian Association:

The agricultural students have always taken an active interest in the Young Men's Christian Association of the University. This association owns a \$50,000.00 stone building devoted to the religious and social life of the students of the University. In the building are rooms for the accommodation of 80 students; in addition there are quarters for the secretary and other officers of the association; an auditorium for meetings, and various committee rooms used by the student organizations. New students are advised to confer with the secretary of the Young Men's Christian Association in reference to finding suitable places to board and room. Students desiring employment should also consult the man in charge of this work in the Y. M. C. A. Building.

STATE ACTIVITIES OF THE COLLEGE.**Teaching Agriculture in the State:**

Six men from the College of Agriculture in thirteen days' time gave instruction in Agriculture to 93,800 people. This was accomplished by means of special trains furnished by the Frisco, Burlington, and Wabash Railroads.

Twenty-one teachers from the College of Agriculture made public addresses on agricultural subjects during the past year in most of the 114 counties of Missouri. The total number of addresses made at these meetings was 396. Over 143,000 farmers attended these meetings.

The College uses this means to explain the results of the agricultural experiments made by the Experiment Station and to demonstrate modern methods of agriculture.

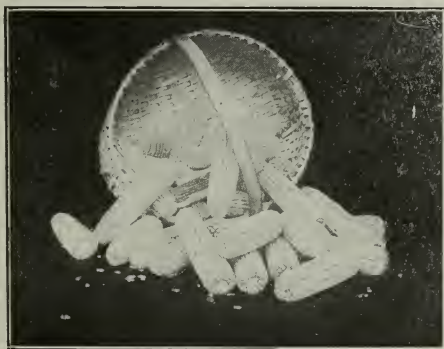
Judging Live Stock at County Fairs:

The Agricultural College supplied forty-two county fairs with expert judges of live stock in 1910. These expert judges were trained for this work by the animal husbandry department. It required ninety-five days and the services of twelve men to supply this demand for judges.

The total number of animals examined and placed for the award of prizes was 6,027.

There were 303,550 people attending these fairs.

By this means the College is using the most efficient and practical method of educating stock men and farmers how to select and develop the most profitable types of animals.



PRIZE CORN.

Judging Corn at Local Shows:

The department of Agronomy supplied judges of corn at 61 local Missouri corn shows during the past year. A total of 251,500 people attended these exhibitions.

Teaching Agriculture in the Rural Schools:

The College of Agriculture has supervised directly the agricultural instruction of 741 pupils in the rural schools of Missouri during the session of 1909-10. The University is sending a competent instructor to the rural school and there aiding the rural school teacher in teaching Agriculture efficiently.

More than thirty thousand bulletins have been published especially for teachers in rural schools on the subjects of "Ten Lessons on Indian Corn," "The Soil," and "The Horse." In addition large numbers of other Experiment Station and College Bulletins have been sent to teachers and pupils.

In the development of this work the College of Agriculture has visited thirty two counties of Missouri. The instructor in Rural Education has delivered forty-one public addresses to 9,265 pupils.

In the regular University Summer School rural school teachers are given instruction in agronomy, animal husbandry, and horticulture.

Other Phases of Extension Work in Agriculture:

The College of Agriculture does not confine the benefits of its

instruction to those students only who are permitted to enroll in the regular courses at Columbia. In many ways the College is carrying the results of its practical experiments directly to the people of the State.

The Farmers' Short Course. During the Farmers' Week Convention at Columbia the College of Agriculture offers each year a Short Course for Farmers. This continues for one week and 1300 farmers were enrolled in 1911.

Teaching Agriculture to Teachers. Each summer from June to August, the College of Agriculture offers special courses to teachers with a view to preparing them to teach Agriculture in the rural and high schools of Missouri. Sixty-nine teachers were enrolled in these courses in 1911.

Farmers' Institutes. In co-operation with the State Board of Agriculture, men from the Agricultural College have delivered 460 public addresses at Farmers' Institutes and other Agricultural meetings in Missouri.

Farm Management Demonstration Meetings. The College of Agriculture in co-operation with the United States Department of Agriculture has inaugurated a plan of holding Farm Management Demonstration meetings on the farms of the managers of the demonstration farms which are conducted under the direction of the department of farm management.

Correspondence:

In one year's time men in the College of Agriculture have received and answered 52,407 letters and post cards. In most cases personal replies have been made to definite questions relating to agricultural practice. The correspondence of men in the College of Agriculture has doubled during the past twelve months.

The Traveling Dairy Instructor:

The College of Agriculture is helping in the development of the dairy industry of the State. It maintains a traveling dairy instructor whose whole time is devoted to organizing and instructing dairy associations and individual dairy farmers in Missouri.

Boys' Corn Growing Contest:

In 1911 there were 3000 Missouri boys and young men enrolled in a corn growing contest under the direction of the College of Agriculture. Full directions for selecting, planting, cultivating and harvesting are furnished these men by the College of Agriculture. When the crop is harvested the corn is exhibited at a county corn show and judged by men from the College or Board of Agriculture. In counties located in South Missouri the winners received a \$100 scholarship in the Short Winter Course in Agri-

culture offered by the Frisco Railroad. In twelve Missouri counties through which the Santa Fe Railroad runs a scholarship of \$50 was given to young men who win in the county corn show.

Boys' Short Course:

The College offers a special course of one week to farm boys in grain and live stock judging. In 1911, fifteen boys from twelve to sixteen years of age were thus given the benefits of instruction in better methods of farming.

THE EXPERIMENT STATION

The Experiment Station is a Division of the College of Agriculture. Its function is original investigation for the benefit of agriculture.

The establishment of the Experiment Station as a division of the College of Agriculture has had a profound influence upon the instructional activities of the institution. It has emphasized the fundamental importance of original research and the investigations in progress have furnished the best sort of material for demonstrations. Advanced students are utilized as much as possible for assisting in experimental work and are thus enabled to acquire valuable practical experience. Some of the results of the work of the Experiment Station are mentioned below:

RESULTS OF WORK OF THE EXPERIMENT STATION.

Distribution of Hog Cholera Serum:

The Experiment Station inoculated 150,000 hogs during the past year. Eighty-five per cent of these hogs were saved. At a conservative estimate, the work of the College has added \$700,000 in cash to the resources of Missouri in this item alone in one year. A new laboratory used exclusively for making this serum has recently been completed to meet this rapidly increasing demand.

The estimated annual loss resulting from hog cholera in Missouri is \$1,500,000. It is confidently expected that the work of the College will in time stamp out or efficiently check this dread scourge and by so doing add this large sum annually to the wealth of the State.

Results on Outlying Experiment Fields:

Soil Experiments on the Station's field at Monroe City in Northeast Missouri have increased the yield of wheat by sixteen bushels per acre with a corresponding increase in the net profit.



IN THE HOG CHOLERA SERUM LABORATORY

On the Soil Experiment field at Lamar in Southwest Missouri it has been shown that corn may be increased from twenty bushels to forty-five bushels per acre. In the same locality wheat has been increased twelve bushels per acre.

Good Soil management on one of the Station's outlying experiment fields located at Victoria increased the clover yield from one-half ton to two tons per acre. The increased net profit was \$6.00 per acre.

In Christian County corn yields have been increased sixteen and a half bushels per acre and clover one ton on each acre by the application of results secured by the Missouri Experiment Station on its Billings field.

Results of Soil Survey:

As a result of the investigations relating to the soil survey of Missouri, there has already been accomplished a general preliminary soil survey of the whole State. A more careful survey of the Ozark region and of Northeast Missouri has been made. A thorough and detailed agricultural and soil survey of the following counties in Missouri has been completed: Atchison, Audrain, Barton, Bates, Cape Girardeau, Cooper, Crawford, Cedar, De Kalb, Howell, Jackson, Marion, Pemiscot, Putnam, Saline, St. Charles, Scotland, Shelby, Sullivan, Webster.

The results of these investigations have been published in bulletin form, in part by the United States Department of Agri-

culture, co-operating with this Experiment Station and in part by the Missouri Experiment Station.

Enough has already been learned of the crop adaptation of various soil types to suggest the kind of crops which seem to thrive best on particular soil areas.

Results in Other Departments:

Peach trees pruned according to the methods discovered by this College have been made to produce two additional crops in eight years. If this method were adopted throughout the entire State the increased wealth in eight years would amount to over twelve million dollars.

The Jonathan apple orchard on the Horticultural grounds which was sprayed yielded over \$160 per acre, while unsprayed Jonathan orchards in the neighborhood had almost no marketable fruit.

As a demonstration experiment, the College of Agriculture sprayed one acre of Jonathan apples in a 140-acre commercial apple orchard near Columbia. This sprayed acre produced more marketable apples than the remaining 139 acres which were not sprayed.

One-eighth of an acre of asparagus on the horticultural grounds has produced an average of \$80.00 annually for the past five years. This is at the rate of \$600 per acre for each year.

A pure bred Holstein Friesian cow, "Missouri Chief Josephine," born on the College Farm, has made several world's records, as follows:

In four months, 11,536.1 pounds milk.

In six months, 17,008 pounds milk.

In eight months, 21,698 pounds milk.

In ten months, 24,530 pounds milk.

In eleven months, 25,650 pounds milk.

These are the highest records known for the periods named.

A three-year-old Jersey cow, "Pedro's Estella," bred on the College Farm, produced seven hundred and twelve pounds of butter in one year. This was the world's record for a three-year-old Jersey cow at the time the record was made.

Five Jersey cows owned by the Experiment Station have each produced more than seven hundred pounds of butter in one year. Only twenty Jersey cows in the history of the world had produced over seven hundred pounds of butter each in one year when these records were made.



"SEPARATOR TIME"

Results from Co-operative Experiments:

The average yield of corn in Missouri in 1909 was 27.4 bushels per acre. The average yield of corn on the farms of twenty-five farmers, co-operating with the Agricultural Experiment Station in the same year, was 48 bushels per acre. Each of these co-operators has become a demonstrator of the successful methods of corn growing which have been recommended by the Experiment Station.

AVAILABLE PUBLICATIONS OF THE EXPERIMENT STATION.

The results of completed experiments conducted at the Station are published in bulletin form and mailed free to farmers. The following bulletins are now available for distribution:

- Bulletin 54. The Strawberry False Worm.
The Strawberry Leaf-Roller.
- Bulletin 55. Pruning Peach Trees.
- Bulletin 71. The Fruit Tree Leaf-Roller.
- Bulletin 83. Soil Experiments on the Upland Loam of Southeast Missouri.
- Bulletin 84. Soil Experiments on the Prairie Silt Loam of Southwest Missouri.
- Bulletin 97. Co-operation Among Fruit Growers.
Variety Tests of Corn at Columbia.
- Bulletin 88. Soil Management in the Ozark Region.

- Bulletin 97. Co-operation Among Fruit Growers.
Bulletin 99. Inspection of Commercial Fertilizers.
Bulletin 100. Influence of Fatness of Cow at Parturition on Per Cent of Fat in Milk.
Bulletin 101. Report of the Director.
Bulletin 102. Combating Orchard and Garden Enemies.
Bulletin 103. The Silo for Missouri Farmers.
Bulletin 104. The Evergreen Bagworm.
Circular 37. Variations in Cream Tests.
Circular 38. The Principles of Maintaining Soil Fertility.
Circular 40. The Seeding of Alfalfa.
Circular 41. Directions for Testing Milk on the Farm.
Circular 42. The Seeding of Clovers and Grasses.
Circular 43. Wheat Growing in Missouri.
Circular 44. Feeding for Milk Production.
Circular 46. Factors Influencing the Yield of Oats.
Circular 47. Raising Calves on Skim Milk.
Circular 48. The Plastered or Gurler Silo.
Circular 50. Selection of Corn for Seed and Show.
Circular 51. How to Prolong the Life of Fence Posts.
Circular 52. Growing a Woodlot from Seed.
Circular 53. The Seeding of Cowpeas.
Circular 54. Co-operative Experiments of the Department of Agronomy.
Circular 55. Forage Crops for Swine.

SOME POSITIONS HELD BY GRADUATES OF THE COLLEGE OF AGRICULTURE

President of the Kansas Agricultural College.
Chief of the National Bureau of Plant Industry, U. S. D. A.
Chief in Nutrition, Ohio Experiment Station.
Dean of the Louisiana College of Agriculture.
Dean of the Arkansas College of Agriculture.
Director of the Louisiana Experiment Station.
Director of the Arkansas Experiment Station.
Director in Charge of Experiment Station, Porto Rico.
Acting Director, Bureau of Agriculture, Philippine Islands.
Director of Agricultural Education for the Argentine.
Professor of Rural Education, State College, Pennsylvania.
Professor of Animal Husbandry, University of Alabama.
Professor of Dairy Husbandry, University of Vermont.
Professor of Animal Husbandry, State College, Pennsylvania.
Professor of Animal Husbandry, University of Tennessee.

- Professor of Horticulture, University of Missouri.
Professor of Agricultural Chemistry, Arkansas.
Professor of Veterinary Science, University of Missouri.
Professor of Dairying, University of Utah.
Professor of Agriculture, Illinois College, Jacksonville.
Professor of Botany, State University of Virginia.
Professor of Dairy Husbandry, Porto Rico.
Professor of Botany, State College of New Hampshire.
Formerly Professor of Dairy Husbandry, University of Tennessee.
now manager of a Missouri dairy farm.
Professor of Agricultural Chemistry, University of Oklahoma.
Professor of Agronomy, University of Delaware.
Professor of Agriculture, State Normal School.
Professor of Agriculture, State Normal School.
Professor of Farm Crops, Iowa State College, Ames, Iowa.
Professor of Dairying, Kansas State Agricultural College.
Professor of Horticulture and Botany, Oklahoma Experiment Station, Stillwater, Oklahoma.
Professor of Comparative Medicine, West Raleigh, North Carolina.
Head of the Agronomy Department, University of Idaho.
Head of the Dairy and Animal Pathology Departments, Georgia.
Assistant Professor of Horticulture, Arkansas.
Assistant Professor of Agronomy, North Dakota.
Assistant Professor of Dairy Husbandry, Purdue University, Indiana.
Assistant Professor of Agronomy, University of Missouri.
Assistant Professor of Animal Husbandry, Kansas Agricultural College.
Assistant Professor of Agronomy, University of Maine.
Assistant Professor of Animal Husbandry, Montana State College of Agriculture.
Assistant Professor of Bacteriology, State Agricultural College, Ames, Iowa.
Instructor in Agronomy, University of California.
Instructor in Animal Husbandry and Veterinary Science, Arizona.
Instructor in Dairy Bacteriology, Iowa State College.
Instructor in Animal Husbandry, Kansas State Agricultural College.
Instructor in Organic Chemistry and Veterinary Science, Kansas City Veterinary College.
Instructor in Plant Pathology, Cornell University, Ithaca, New York.
Instructor in Horticulture, University of Washington.
Instructor in Horticulture, University of Nebraska.

- Instructor in Grain Crops, Iowa State College, Ames, Iowa.
Instructor in Horticulture, Iowa State College, Ames, Iowa.
Instructor in Botany, Pennsylvania State College.
Assistant in Department of Nautical Instruments, Naval Observatory.
Assistant State Entomologist in New York.
Assistant in Horticulture, University of Virginia.
Assistant in Animal Husbandry, Kansas Agricultural College.
Assistant in Botany, Cornell University.
Assistant in Animal Husbandry, Purdue University.
Assistant Chemist in Charge of Fertilizer Experiments, Arkansas.
Assistant in Plant Physiology, Cornell University, New York.
Assistant in Botany, State College, Pennsylvania.
Assistant in Plant Physiology, Florida.
Assistant in Truck Farming, Truck Experiment Station, Norfolk, Virginia.
Agriculturist, National Bureau of Plant Industry.
Department of Agriculture, U. S. Office of Farm Management.
Pomologist in charge of Viticultural Investigation, U. S. Department of Agriculture.
Agricultural Expert at the National Tribunal, Cairo, Egypt.
Manager of Harbor Hill Farms, Long Island, New York.
Expert in Bureau of Plant Industry, U. S. D. A.
Superintendent of Agricultural Education for the Indians.
Members of Bureau of Agriculture, Philippines.
Dairyman, Agricultural Department, University of Idaho.
Junior Dairyman, U. S. Department of Agriculture.
Chemist in Charge of Citrus Experiment Station, Riverside, California.
Experimentalist, Animal Husbandry, Iowa State College, Ames, Iowa.
Agriculturist, State School of Agriculture, Lawton, Oklahoma.
Superintendent, Missouri Training School Farm, Boonville, Missouri.
Assistant Editor of a farm paper, Oregon.
Manager of 2000 acres in Northwest Missouri.
Teacher in Wentworth Military School, Lexington, Missouri.
Associate Editor of the Breeders Special, Kansas City, Missouri.
Manager of a large fruit farm in Idaho.
Manager of large landed interests in Ray County, Missouri.
Manager of 1000 acre farm at Concordia, Missouri.
Lumber interest, Greenville, Mississippi.
Lawyer, St. Louis, Missouri.
Veterinary Inspector, St. Louis, Missouri.

Banker, Memphis, Missouri.

Veterinary Surgeon, Novelty, Missouri.

Manager of a 500 acre farm, Crescent, Missouri.

Ranch Owner, California.

Manager of a 1000 acre stock farm, Centralia, Boone County, Missouri.

County Commissioner of Schools, Missouri.

Editor Agricultural Paper, St. Louis, Missouri.

Chemist, Coke Works, Pennsylvania.

With Dairy Extension, U. S. D. A.

Manager of a large stock farm, Nemaha, Nebraska.

Manager of the dairy department of the Clarence Mackey Estates, Long Island.

Manager of a large stock and grain farm in Lafayette County, Missouri.

Dairyman, Wisconsin.

POSITIONS IN THE UNIVERSITY OF MISSOURI HELD BY LOCAL GRADUATES.

Assistant Professor of Agricultural Chemistry.

Two Assistants in Agricultural Chemistry.

Associate Professor of Agriculture.

Assistant in Agriculture.

Two Instructors in Animal Husbandry.

Assistant in Animal Husbandry.

Assistant Professor of Dairy Husbandry.

Instructor in Dairy Husbandry.

Two Assistants in Dairy Husbandry.

Professor of Farm Management.

Instructor in Farm Management.

Professor of Horticulture.

Assistant Professor of Horticulture.

Assistant in Horticulture.

Professor of Veterinary Science.

Three Assistants in Veterinary Science.

Instructor in Soil Survey.

Three Assistants in Soil Survey.

The members of the 1912 graduating class who received appointments before the June Commencement are listed below:

Manager 300 acre farm.

Assistant in Dairy Husbandry, State College, Pennsylvania.

Soil Survey, University of Missouri.

Soil Survey, University of Missouri.

Manager 600 acre farm.

Research Fellowship in Animal Husbandry, University of Missouri.

Assistant in Horticulture, Purdue University.

Manager 5000 acre farm.

Wisconsin Dairy Farm.

Assistant in Farm Management work, with the U. S. Department of Agriculture.

Assistant in Dairy Husbandry, University of Missouri.

Manager 400 acre farm.

Assistant in Animal Husbandry, University of Missouri.

Oregon Orchard Farm.

Assistant in Dairy Husbandry, University of Illinois.

Assistant in Veterinary Science, University of Missouri.

Manager of Farm.

Instructor in Pomology, Massachusetts Agricultural College.

Dairy farmer.

Horticulturist.

Manager 400 acre farm.

Horticulturist.

Manager of farm.

Holder of Research Fellowship, University of Missouri.

Fourteen farmers.



A CLINIC IN VETERINARY SCIENCE

THE FACULTY

- ALBERT ROSS HILL, A. B., Ph. D., LL. D.,
President of the University.
- FREDERICK BLACKMAR MUMFORD, B. S., M. S.,
Professor of Animal Husbandry, Dean of the Faculty, and
Director of the Agricultural Experiment Station.
- HENRY MARVIN BELDEN, A. B., Ph. D.,
Professor of English.
- EDWIN BAYER BRANSON, A. B., A. M., Ph. D.,
Professor of Geology and Mineralogy.
- CHESTER LELAND BREWER,
Professor of Physical Education.
- WILLIAM GEORGE BROWN, B. S., Ph. D.,
Professor of Technical Chemistry.
- SIDNEY CALVERT, B. S., A. M.,
Professor of Organic Chemistry.
- JOHN WALDO CONNAWAY, D. V. S., M. D.,
Professor of Veterinary and Comparative Medicine, and Veterinarian to the Agricultural Experiment Station.
- WINTERTON CONWAY CURTIS, A. B., A. M., Ph. D.,
Professor of Zoology.
- CLARENCE HENRY ECKLES, B. S. in Agr., M. S.,
Professor of Dairy Husbandry, and in charge of the Dairy Department of the Agricultural Experiment Station.
- LIEUTENANT ELLERY FARMER,
Professor of Military Science and Tactics.
- JOHN A. FERGUSON, M. A., M. F.,
Professor of Forestry.
- WALTER LAFAYETTE HOWARD, B. S., M. S., Ph. D.,
Professor of Horticulture.
- GEORGE LEFEVRE, A. B., Ph. D.,
Professor of Zoology.
- *CURTIS FLETCHER MARBUT, B. S., A. M.,
Professor of Geology and Mineralogy, and in charge of the State Soil Survey.
- MERRITT FINLEY MILLER, B. S., M. S. A.,
Professor of Agronomy, and Agronomist to the Agricultural Experiment Station.
- HERMAN SCHLUNDT, B. S., M. S., Ph. D.,
Professor of Physical Chemistry.

*On leave of absence, session of 1911-12.

- EDWIN A. TROWBRIDGE, B. S., in Agr.,
Professor of Animal Husbandry.
- PERRY FOX TROWBRIDGE, Ph. B., A. M., Ph. D.,
Professor of Agricultural Chemistry, and Chemist to the
Agricultural Experiment Station.
- JOHN CHARLES WHITTEN, B. S., M. S., Ph. D.,
Professor of Horticulture, and Horticulturist to the Agri-
cultural Experiment Station.
- HARRY ORSON ALLISON, B. S.,
Assistant Professor of Animal Husbandry.
- WILLIAM HENRY CHANDLER, B. S. in Agr., M. S. in Agr.,
Assistant Professor of Horticulture.
- AMY LOUISE DANIELS, B. S. in Ed.,
Assistant Professor of Home Economics.
- DUANE HOWARD DOANE, B. S. in Agr., M. S.,
Assistant Professor of Farm Management.
- ELIAS JUDAH DURAND, A. B., D. Sc.,
Assistant Professor of Botany.
- CLAUDE BURTON HUTCHISON, B. S. in Agr.,
Assistant Professor of Agronomy.
- HARRY LAVERNE KEMPSTER, B. S.,
Assistant Professor of Poultry Husbandry.
- HORACE FAIRCHILD MAJOR, B. S. in Agr.,
Assistant Professor of Landscape Gardening.
- ARTHUR J. MEYER,
Assistant to the Dean and Director, and Superintendent of
Short Courses.
- RAYMOND DURBIN MILLER, A. B., Ph. D.,
Assistant Professor of English.
- CHARLES ROBERT MOULTON, B. S., M. S. in Agr., Ph. D.,
Assistant Professor of Agricultural Chemistry.
- GEORGE MATTHEW REED, A. B., A. M., Ph. D.,
Assistant Professor of Botany.
- *GEORGE REEDER, Section Director, U. S. W. B.,
Lecturer on Meteorology and Climatology.
- ROBERT WASHINGTON SELVIDGE, B. S., A. M.,
Assistant Professor of Manual Arts.
- LOUISE STANLEY, B. S., M. A.,
Assistant Professor of Home Economics.
- LEE SELDON BACKUS, D. V. M.,
Instructor in Veterinary Science.
- RICHARD HUFF EMBERSON, B. S.,
Instructor in Rural Education.

- FREDERICK VALENTINE EMERSON, A. B., Ph. D.,
Instructor in Geology.
- PERCY LEROY GAINEY, B. S. A., M. A.,
Instructor in Botany.
- JAMES ANDREW GIBSON, B. A., M. A.,
Instructor in Chemistry.
- HOWARD HACKEDORN, B. S. in Agr.,
Instructor in Animal Husbandry.
- JAY COURTLAND HACKLEMAN, B. S. in Agr.,
Instructor in Agronomy.
- LEONARD HASEMAN, A. B., A. M., Ph. D.,
Instructor in Entomology and Entomologist to the Agricultural Experiment Station.
- LORIN GEORGE RINKLE, B. S., M. S. in Agr.,
Instructor in Dairy Husbandry.
- LUTHER ABRAHAM WEAVER, B. S. in Agr.,
Instructor in Animal Husbandry.
- GEORGE CLEVELAND WHITE, B. S. in Agr.,
Instructor in Dairy Husbandry.
- ARTHUR T. SWEET, A. B.,
Scientist Soil Survey in the U. S. Department of Agriculture.
- JAMES PERCY BENNETT, A. B.,
Assistant in Botany.
- PHILIP MARTIN BRANDT, B. S. in Agr.,
Assistant in Dairy Husbandry.
- NELLE CARTER,
Assistant in Home Economics.
- THOMAS RANKIN DOUGLAS, B. S. in Agr.,
Assistant in Agronomy.
- LEONARD DIXON HAIGH, B. S., M. S., Ph. D.,
Assistant in Agricultural Chemistry.
- OLIVER RAY JOHNSON, B. S.,
Assistant in Farm Management.
- MARY LUCILLE KEENE, B. S. in Ed., A. B.,
Assistant in Botany.
- HENRY H. KRUSEKOPF, B. S. in Agr.,
Assistant in Soil Survey.
- CARLOS AMIE LECLAIR, B. S. in Agr.,
Assistant in Agronomy.
- LORING EDWIN MORGAN, A. B.,
Assistant in Agricultural Chemistry.
- DONALD MARR NELSON, Ch. E.,
Assistant in Agricultural Chemistry.

- †LEROY SHELDON PALMER, Ch. E., A. M.,
Assistant in Dairy Husbandry.
- SILAS T. SIMPSON, B. S., in Agr.,
Assistant in Animal Husbandry.
- FRED CLARE STREETER, B. S. in Agr.,
Assistant in Veterinary Science.
- BOLESLAUS SZYMONIAK, B. S. in Agr.,
Assistant in Horticulture.
- CLARENCE EGBERT WILSON, B. S. in Agr.,
Assistant in Veterinary Science.
- WALTER WILLIAM WOBUS, B. S. in Agr.,
Assistant in Dairy Husbandry.
- EDWIN GARVER WOODWARD, B. S. in Agr.,
Assistant in Dairy Husbandry.
- WINONA WOODWARD, B. S.,
Assistant in Home Economics.
- ELMER ELLSWORTH VANATTA, M. S. in Agr.,
Assistant in Agricultural Chemistry.
- HANS J. BOCK,
Student Assistant in Entomology.
- HUBERT B. CARPENTER,
Student Assistant in Animal Husbandry.
- VICTOR C. FOLLENIUS,
Student Assistant in Entomology.
- ARTHUR E. HEPTONSTALL,
Student Assistant in Manual Arts, Short Course.
- HENRY E. HOPPER,
Student Assistant in Veterinary Science.
- R. F. JARVIS,
Student Assistant in Manual Arts, Short Course.
- GEORGE T. LIPP,
Student Assistant in Veterinary Science.
- FRANCIS E. LONGMIRE,
Student Assistant in Agronomy.
- MARION WAYNE LOWRY,
Student Assistant in Agricultural Chemistry.
- J. E. McPHERSON,
Student Assistant in Animal Husbandry, Short Course.
- JOSEPH OSKAMP,
Student Assistant in Horticulture.
- EARLE L. OVERHOLZER,
Student Assistant in Botany.
- †In the service of the United States Department of Agriculture.

OLIN RAYNER,

Student Assistant in Agronomy.

JAMES T. THURMAN,

Student Assistant in Agronomy

WILLIAM ISAAC WATKINS,

Student Assistant in Agricultural Chemistry.

CLEO CLAUDE WIGGINS,

Student Assistant in Horticulture.

UNIVERSITY CALENDAR.

AT COLUMBIA

Summer Session

1912-

June 14,	Friday, Registration, Summer Session.
June 15,	Saturday, Organization of Classes.
July 4,	Thursday, Holiday.
August 14,	Wednesday, Lectures Close.
August 15,	Thursday
August 16,	Friday
	} Examinations.

First Semester

September 16, 17, 18,	Monday, Tuesday and Wednesday, Entrance Examinations and Registration.
September 19,	Thursday, at 8 A. M. Class Work in all Divisions Begins.
September 19,	Thursday, at 10 A. M. Opening Convocation.
November 28,	Thursday, Thanksgiving Holiday.
December 10,	Tuesday, Annual Meeting of Curators.
December 20,	Friday, at 4 P. M. to
1913.	} Christmas Holidays.
January 6,	Monday, at 8 A. M.
February 1,	Saturday to
February 8,	Saturday
	} Mid-Year Examinations.

Second Semester

February 10, 11,	Monday and Tuesday, Registration, Second Semester.
February 12,	Wednesday, at 8 A. M. Class Work in all Divisions Begins.
February 13,	Thursday, at 10 A. M. Opening Convocation.
March 20,	Thursday, at 4 P. M. to
March 26,	Wednesday, at 8 A. M.
April 3,	Thursday, Quarterly Meeting of Curators.
May 31,	Saturday to
June 7,	Saturday
June 8,	Sunday, Baccalaureate Sermon.
June 9,	Monday, Class Day.
June 9, 10, 11,	Monday, Tuesday, and Wednesday, Entrance Examinations.
June 10,	Tuesday, Phi Beta Kappa Day.
June 11,	Wednesday, Commencement Day.
June 11,	Wednesday, Semi-Annual Meeting of Curators.

INFORMATION ABOUT THE UNIVERSITY

GENERAL STATEMENT.

The fundamental aim of the University of Missouri is the development of the highest and most efficient type of citizen. For the purpose of attaining its aim, the University furnishes ample facilities for liberal education and for thorough professional training. The University is a part of the public educational system of the state.

In the course of seventy-three years of development, new divisions of instruction have been organized in response to the needs of vocations followed by citizens of the state.

ORGANIZATION.

The work of the University is now carried on in the following Schools and Colleges:

- College of Arts and Science
- College of Agriculture
- School of Education
- School of Law
- School of Journalism
- School of Medicine
- School of Engineering
- School of Mines and Metallurgy.
- Graduate School

All of these divisions are at Columbia with the exception of the School of Mines and Metallurgy, which is located at Rolla. In addition, emphasis is given particular lines of work by the establishment of minor divisions, the chief of which are the Extension Division, the Agricultural Experiment Station, the Engineering Experiment Station, and the Military Department.

LOCATION.

The University of Missouri is located at Columbia, a town situated half way between St. Louis and Kansas City near the center of the state. It is reached by the Wabash and Missouri, Kansas and Texas Railways. Columbia is a progressive and prosperous town having doubled its population in the last few years. It has nearly twenty miles of paved streets.

Columbia may be characterized as a town of schools, homes and churches, with enough of industrialism to make it efficient. It offers the conveniences of a larger city without the counter attractions. The student is a predominant factor in Columbia. He is one to three in numbers. The population of the town is 10,000.

EQUIPMENT.

The University grounds cover over seven hundred acres. The main divisions are in the Quadrangle, the Horticultural Grounds, the Physical Education Grounds, and the Agricultural College Farm.

The following University buildings are located at Columbia: Academic Hall; Laws Observatory; separate buildings for Chemistry; Zoology and Geology; Law; Engineering, Manual Arts, three power houses; Medical Laboratory Building; Parker Memorial Hospital including the Busch Clinic; Agricultural Building; Horticultural Building; Green Houses; Live-Stock Judging, Dairy, Farm Machinery, and Veterinary Buildings, and the Agricultural Farm Barns and Buildings; Switzler Hall, for the School of Journalism; Benton and Lathrop Halls, dormitories for men; Read Hall, the dormitory for women; Rothwell Gymnasium; the houses for the President of the University and the Dean of the College of Agriculture; the High School, and the Elementary School Buildings used for practice schools in the School of Education.

FOR FURTHER INFORMATION.

Full information regarding the University is given in the catalogue which will be sent on request without charge. For this or special bulletins of the Graduate School, College of Arts and Science, College of Agriculture, School of Education, School of Law, School of Medicine, School of Engineering, and the School of Journalism, write to

DEAN OF THE UNIVERSITY FACULTY,
University of Missouri,
Columbia, Missouri

THE UNIVERSITY OF MISSOURI BULLETIN

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FOR 1912 VOLUME 13

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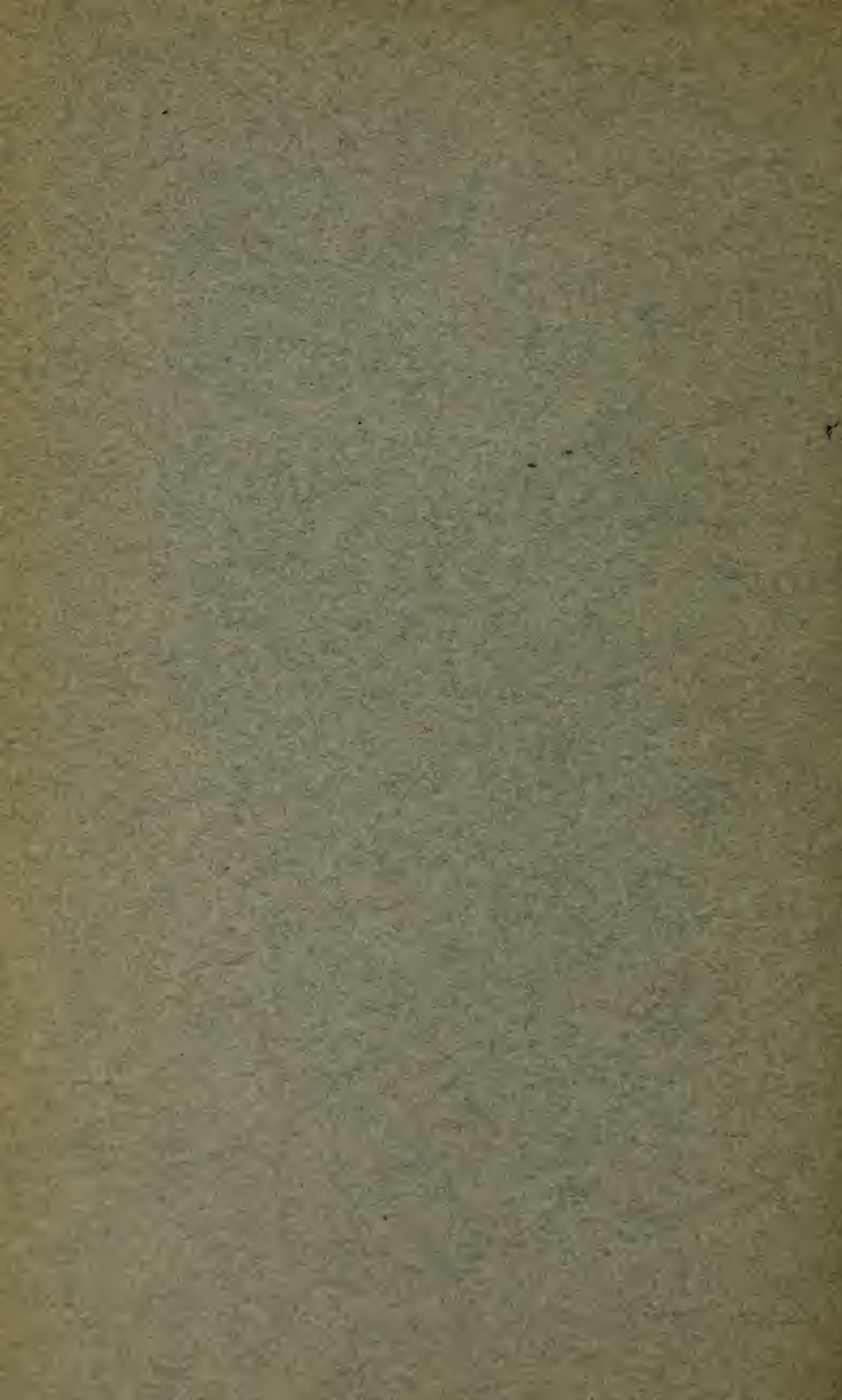
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VOLUME 14 NUMBER 10

UNIVERSITY OF MISSOURI

ANNOUNCEMENT
OF THE
COLLEGE OF AGRICULTURE
(Regular Session)
1913-1914

MAY 1917



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COLUMBIA, MISSOURI
October, 1913.

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OPPORTUNITIES IN AGRICULTURE

A man who is thoroughly well trained in agriculture has before him unlimited opportunities for a useful career. Young men who are undecided as to their future careers will find in the agricultural resources of Missouri a promising field. More than a million and a half people live on Missouri farms or are directly dependent upon agriculture for their livelihood. The vocation of farming is not crowded. Other professions are crowded. Special training for agriculture will contribute as efficiently to the success of the future farmer as special training has contributed to proficiency in engineering, law, and the other professions.

The College has not been able to supply the demand for its graduates as farm managers, teachers in agricultural colleges and high schools, investigators in experiment stations, scientific aids in the United States Department of Agriculture, foresters, farmer's institute lecturers, and agricultural journalists.

EDUCATION FOR AGRICULTURE

The University of Missouri believes that the young man who is to manage a Missouri farm is entitled to the same high grade of instruction that is offered to the man who is to become a lawyer, a physician, a preacher, or a teacher. It maintains, therefore, a four-year curriculum in agriculture.

Educating men for agriculture, a vocation fundamentally important to the State, is regarded by the University as a sacred obligation imposed upon it by the Federal and State Governments. Large investments in buildings and equipment have been provided for making the instruction in agriculture second to none. Many trained teachers, each an expert in his line, have been gathered in the faculty of the College of Agriculture for giving to Missourians the best available instruction. There is no important phase of agricultural instruction which is not given at Columbia.

THE MISSOURI COLLEGE OF AGRICULTURE

The College of Agriculture at Columbia is the only institution organized by the State of Missouri for the express purpose of training for successful agriculture. It is the function of the College to

train men and women for successful living in the open country. It accomplishes this by educating farmers, dairymen, fruit growers, grain growers, stockmen, foresters, and teachers of agricultural subjects.

During the session of 1912-13 the College of Agriculture gave some special instruction in agriculture to 2808 persons at Columbia. This number includes 1581 persons who attended the Farmers' Short Course in January. Of the total number more than 1800 are now on Missouri farms practicing the better methods of agriculture taught here.

The instructional and investigational work of the College of Agriculture is carried on in seventeen buildings devoted exclusively to the more technical phases of agriculture. In addition, the students in agriculture receive instruction in each of the great buildings on the main campus of the University. More than forty teachers and investigators devote their entire time to teaching and investigating in the technical agricultural subjects.

During the year there were 820 students enrolled in the College of Agriculture. This number includes 27 graduate students working for advanced degrees in the various departments of the College.

FACILITIES FOR INSTRUCTION

BUILDINGS

Agricultural Building. A two-story stone structure with a high basement and an auditorium seating 500 persons. More than 1,000



STUDENTS JUDGING LIGHT HORSES

students may be accommodated at one time in class rooms and labo-

ratories. The building includes: offices of the Dean and Director; the State Board of Agriculture, including the State Veterinarian; the Seed Testing Laboratory, the departments of agronomy, animal husbandry, farm management, forestry, soil survey, and general agricultural library.

Horticultural Building. A stone building, two stories and a well-lighted basement with plant house and insectary, class rooms, laboratories, offices and preparation rooms for horticulture, botany and entomology.

Dairy Building. A stone building, two stories, with cheese-curing room in basement, rooms for creamery manufacturers, cheese-making, dairy work, milk-testing laboratory, offices and class rooms.

The chemist of the Experiment Station is provided with laboratories in the Dairy Building.

Agricultural Chemistry Building. A new two-story stone building, 170 feet long and 65 feet wide, with well-lighted basement. On the first floor are the offices and general chemical laboratories of the Experiment Station, two large student laboratories, a nitrogen laboratory, two balance rooms, an ether extraction room, instructors' laboratory, and a small class room. The second floor of the building is to be used for freshman students in the Department of Chemistry. It contains three large laboratories, a lecture room seating 100 students, a large class room, balance rooms, offices and special laboratories. The student laboratories will accommodate 260 students each semester. The basement contains storerooms, coolers, and demonstration rooms.



THE COLLEGE FLOCK, THE SHEPHERD AND HIS COLLIE

Barns, Shelters, and Live Stock Judging Pavilion. The department of animal husbandry is equipped with modern cattle barns, providing accommodations for one hundred cattle. The first story is of stone with granitoid floors. In connection is a two hundred and fifty ton stone silo. There are cattle feeding sheds, divided into fifteen lots for experimental feeding and other investigational work; a modern hog barn with concrete floors, iron pen divisions, and dipping tank; a barn for the leading pure breeds of sheep; and a stock judging pavilion. In addition to the stone silo mentioned, the College has two concrete silos in connection with the dairy barn and one steel silo adjoining the feeding sheds.

Dairy Barns. A new dairy barn, modern in every detail and having a capacity for seventy-five dairy cows was completed in 1911.

Veterinary. The veterinary department is housed in a new three-story stone building devoted exclusively to investigation and instruction in veterinary science. The building contains laboratories for anatomy, physiology, investigations in contagious and infectious diseases, the preparation of hog cholera serum, and operating rooms for clinics.

A separate building and infection pens have enabled the department to produce 140,000 doses of hog cholera serum this year.

Poultry. A two-story stone building, including general office, incubator room equipped with various types of incubators, sales room, class rooms and laboratory.

The poultry department has one fifteen-pen laying and breeding house, two farm poultry houses, one experimental breeding house, and ten portable colony houses. A feed house will be constructed during the coming season. Several hundred fowls, representing the popular varieties, are kept for instructional and experimental purposes.

LABORATORIES

Farm Machinery. A commodious stone building equipped with the latest types of steam threshers, self-binders, mowers, corn planters, hayloaders, manure spreaders and gasoline engines.

Botany. Laboratories for physiological and structural botany, and culture rooms for physiological, mycological, and bacteriological work are in the Horticultural Building. They are equipped with compound and dissecting microscopes, microtomes, steam and steam pressure sterilizers, incubators, balances, precision apparatus, and glassware. The herbarium amply illustrates the local flora.

Agricultural Chemistry. The completion of the new Agricultural Chemistry Building, Schweitzer Hall, will furnish exceptional class-



WHERE STUDENTS STUDY THE CHEMISTRY OF SOILS, FEED STUFFS, FERTILIZERS, AND DAIRY PRODUCTS

room and laboratory facilities for undergraduate instruction. The new building has two large student laboratories, a nitrogen laboratory, two balance rooms and an ether extraction room exclusively for student laboratory work. The total capacity of the laboratories is 260 students each semester. A number of research rooms are provided to facilitate the research work of the more advanced students, giving special opportunities for investigations of problems in animal nutrition, soils, fertilizers, foods, feed stuffs, including a critical study of the provisional and official methods of the Association of Official Agricultural Chemists.

Entomology. The laboratories and insectary located in the Horticultural Building are supplied with microscopes, dissecting instruments, microtomes, breeding cages, aquaria, spraying machines, insecticides and re-agents. The museum contains collections of several thousand species of the more injurious and beneficial insects, arranged to illustrate their habits of work and life history.

Horticulture. The horticultural laboratories occupy about 3,300 square feet of forcing-space under glass, a laboratory for the propagation of dormant plants, and storage room for cuttings, bulbs, stocks and scions. The department also has laboratories for soil examinations and investigation of special horticultural problems re-



THE COLLEGE GREEN HOUSE FURNISHES SUMMER CONDITIONS IN
MID-WINTER

garding plant growth. The out-of-door collection on the Horticultural Grounds comprises about one thousand varieties of fruits, ornamental shrubs and trees for a study of planting, pruning, cultivating and spraying.

In addition, eighty acres in the loess soil formation adjacent to Columbia is being developed in orchards, vineyards, etc., of a size to demonstrate the best fruit growing methods on a commercial scale. It also comprises a large collection of young seedling tree fruits which are the result of extensive breeding experiments now going on in the department.

Agronomy. There are laboratories for instructional and investigational work in agronomy, soil laboratories and laboratories for research work. The farm crops laboratories include a judging and exhibition room for judging, grading, and handling of grains, a room for storing demonstration material, and a germinating room.

Dairy Husbandry. Facilities for instruction in dairy manufactures include creamery room, equipped with power separators, churns, pasteurizers, sterilizers and butter printers; a cheese room provided with vats, cheese presses and curing room; cream separators, milk testing apparatus and churns; refrigerating plant and cold

storage; a laboratory for research work carried on in cooperation with the dairy division of the United States Department of Agriculture; and a laboratory for instruction and investigation in dairy bacteriology.

From 500 to 1,000 pounds of butter are manufactured each week throughout the year.

Forestry. The forestry laboratory for the study of wood technology and dendrology is located in the Agricultural Building. The equipment includes a collection of the commercial woods of the country; cross and tangential sections of the trunks of trees of Missouri; an herbarium of tree species; exotic and native trees growing on the University campus; a forest nursery containing seed and transplant beds; and a tract of timber near the University for experimental planting and demonstration.

A permanent forest camp for the summer session of the Curriculum in Forestry is established each summer on some portion of the University Forest of 50,000 acres located in the Ozark region of southern Missouri. This camp is used for practical instruction in lumbering, mensuration, silviculture, and forest surveying.

LIVE STOCK EQUIPMENT

Dairy Herd. The dairy department maintains a herd of about 70 head of the Ayrshire, Jersey, Holstein and dairy Shorthorn breeds. Complete milk and butter records are kept of each cow. The student is given instruction in the breeding, care and management of dairy cattle. Several cows in this herd hold milk and butter records which rank them among the best specimens of dairy cattle ever produced.

Other Live Stock. The animal husbandry department is well equipped with most of the leading breeds of cattle, sheep, swine, and horses. Live stock judging instruction is facilitated by the use of pure bred and grade steers, fitted for fat-stock shows. These steers have won many premiums at the leading live stock shows of the country.

The College maintains breeding herds of Hereford and Shorthorn cattle. In addition, it has representatives of the Aberdeen Angus and Galloway breeds for use in teaching stock judging and studying breed type.

Poland China, Berkshire, Duroc Jersey, and Chester White breeds of swine are maintained.

Shropshire, Delaine Merino, Hampshire, and Cotswold breeds of sheep are included in the College flock.

The horse equipment includes Percherons, saddle horses, and Morgans of the American carriage type.



ANGUS CALVES FROM THE COLLEGE SHOW HERD

In addition to the above, the College purchases from time to time, grade cattle, hogs, and sheep for investigations in feeding.

LIBRARIES

The General Library contains more than 100,000 volumes. Fourteen hundred periodicals, including scientific and technical journals are received at Columbia. The Agricultural Library is located in the Agricultural Building and contains 10,000 volumes on agricultural subjects. Included in the Agricultural Library is a complete set of the herd and flock registers of all the leading breeds of live stock in the world. A complete file of all the Experiment Station bulletins that has been published in the United States and in many foreign countries is bound in permanent form and indexed for ready reference. A large number of German and French books reporting the results of agricultural investigations in European countries are available to advanced students and investigators.

The books and periodicals belonging to the libraries of the University may be drawn by all officers and students and by others under certain conditions.

Practical Excursions.

Visits to successful farms and breeding establishments are made



HOW MISSOURI STOCK MEN ENTERTAIN STUDENT VISITORS



AFTER THE AUTOMOBILE RIDE



SEEING THE GOOD STOCK ON A GOOD MISSOURI FARM

under the guidance of an instructor for the study of special phases of agriculture. The principles taught in the class room are thus observed in their application to agricultural operations on well-managed farms.

WHO SHOULD ATTEND THE COLLEGE OF AGRICULTURE

The kind of instruction offered in the College of Agriculture is of value not only to farmers and teachers of agriculture. Many of the courses offered are of great significance to all classes of people whose business activities or professional relations bring them in more or less intimate contact with rural life.

Farmers. In the College of Agriculture will be found opportunity to become acquainted with the best modern practices in agriculture. Every phase of agricultural activity receives attention in the curricula of the institution.

Dairymen. Those engaged in dairying who hope to attain the largest measure of success in their vocation must have a knowledge of many subjects that cannot be secured outside of an agricultural college. Dairy farming is largely dependent upon an accurate knowledge of many important details. This knowledge is given by the College of Agriculture.

Fruit Growers. The principles and practices of successful orch-

arding are taught. A systematic training in horticulture in the College of Agriculture may save years of costly experience to the orchardist.

Country Teachers. Efficiency in teaching may be greatly increased by a knowledge of agriculture. There is a demand among farmers for some instruction in agricultural subjects. Special courses in agriculture are given for the benefit of teachers. These may be taken either in the regular or in the summer session.

Country Lawyers. Any man whose professional work has to do largely with cultivators of the soil can add largely to his efficiency by a knowledge of the principles governing the practice of agriculture. More and more professional men are taking an active interest in the campaign for rural betterment.

County Superintendents. In an agricultural state like Missouri,



GRADING AND PACKING APPLES IN THE COLLEGE ORCHARD

a county superintendent of schools occupies an important and influential position, not only in relation to the development of the schools but to the development of the social and intellectual life of the people themselves. In the future the county superintendent who

is ambitious to become a leader among his people must know more about agriculture.

Editors of Country Newspapers. Some of the progressive country newspapers of Missouri are giving to their readers high class agricultural matter. The most prosperous and thriving country newspapers are those devoting a large share of attention to the interests of the farmers who make up the subscription list of these papers. The country newspaper editor who secures a training in agriculture will be able to make his paper a force for the betterment of local conditions.

Specialty Farmers. Many persons desire a special training in a restricted field. The College offers special opportunities to men who wish to take a large amount of technical work in poultry keeping, fruit growing, landscape gardening, dairy farming, dairy manufacturing, veterinary medicine, forestry, horse, cattle, sheep and swine production.

Every One Interested in Country Life. Opportunities will be found in the College of Agriculture for gratifying the love of all that pertains to the country.

AGRICULTURE AND HOME ECONOMICS FOR WOMEN

Attention is called to the special curriculum in Agriculture and Home Economics which has been arranged for the benefit of young women in the country who desire to have a knowledge of modern methods of agriculture. This course is correlated with the work in Home Economics and it is possible to secure a very complete training in the latter subject while pursuing courses in agriculture. The agricultural subjects offered to women are largely in the departments of agronomy, horticulture, botany, and poultry husbandry.

ADMISSION

Fifteen units, the equivalent of a four-year high school course, are required for admission as a regular student in the College of Agriculture. A unit is the equivalent of a high school subject pursued five periods a week for at least thirty-six weeks.

Students intending to enter the College of Agriculture are urged to offer units in science; if only one science is taken, it is recommended that it be physics. Three of the units offered must be in English, and one in algebra.

SUBJECTS ACCEPTED FOR ADMISSION

The subjects in which entrance units may be offered, the minimum and the maximum number of units that may be offered in each subject, and the number of units required in certain subjects for each College or School of the University of Missouri are presented in the table given on page 43 of the catalogue of the University for 1912-13.

The University will admit without examination such graduates of an accredited school as offer proper credentials of the fact that they have completed the subjects required for entrance. A person who wishes to offer credits in place of an entrance examination in any subject should have them certified to by the proper official of the school in which the credits were made. Blank forms for such certificates will be furnished by the Dean of the University Faculty. These certificates should be sent as soon as possible to the Dean



A FIRST HAND STUDY OF PLANT GROWTH AND BUD DEVELOPMENT

of the University Faculty. The Dean will then notify the student that his credits are approved or that he will be required to take

entrance examinations in the respective subjects.

Applicants for admission who are deficient in a small portion of the requirements may be admitted conditionally at the discretion of the Dean of the University Faculty.

All prospective students should write to the Dean of the University Faculty, Columbia, Missouri, for further information in reference to admission.

SPECIAL STUDENTS

Mature men and women may be admitted to the College of Agriculture for special study in such subjects as they are prepared to pursue with profit to themselves. Such students must be at least twenty-one years of age. Special students are not candidates for degrees and cannot become such until they have fulfilled all requirements for admission. An application for admission as a special student should be made to the Dean of the University Faculty. If the Dean approves the application he will issue the candidate an entrance card as a special student.

ADMISSION OF GRADUATES OF ACCREDITED JUNIOR COLLEGES

All students who have graduated from accredited junior colleges in this or other states may enter the junior year of the College of Agriculture. If the student has taken work in science in the junior college he can generally complete the technical requirements in the College of Agriculture in approximately two years. Many Missouri students are embracing this opportunity to complete their education and secure instruction in agriculture.

SOPHOMORES FROM STANDARD COLLEGES

The curriculum of the College of Agriculture is so arranged that students who have completed their sophomore year in a standard college may secure credit for all the work done and these credits will be accepted for a part of the requirements for the degree of Bachelor of Science in Agriculture. If such students have had some work in science in their college course, it is possible to complete the requirements for Bachelor of Science in Agriculture in two years. An increasingly large number of college students are taking advantage of this opportunity.

UNDERGRADUATE SCHOLARSHIPS AND PRIZES

For undergraduate Scholarships and Prizes, see the University of Missouri catalogue, 1912-13, pages 73 to 82.

SCHOLARSHIPS AND FELLOWSHIPS FOR GRADUATE STUDENTS

The greatest need in the campaign for rural betterment is wise leadership. The problem of supplying the food of a nation is a big problem. It involves not only the fundamental problem of conservation of soil fertility but social and economic questions as well. The men who are to lead in the solution of problems so fundamentally important must be trained for leadership.

The Missouri College of Agriculture is emphasizing graduate instruction in Agriculture. Wise leadership requires capacity for inde-



PUTTING A COLLEGE TRAINING INTO PRACTICE

pendent thought and original research. All students who intend to continue as teachers and investigators in colleges and in experiment stations are advised to continue their studies in the Graduate School of the University.

To encourage graduate study the University offers scholarships paying \$200 a year and Fellowships paying \$400. Graduates of colleges are eligible for these fellowships. Further information in reference to the fellowships may be had by writing to the Dean of the College of Agriculture.

FEES AND EXPENSES

Tuition is free in all divisions of the University to students who are residents of the State of Missouri. Non-residents of the state are required to pay a tuition fee of \$10 a semester, except in the Graduate School. A library, hospital and incidental fee of \$10 a semester is required of all students, except those in the Summer Session, the Short Winter Courses in Agriculture, and those specially exempt by law or by rules of the Curators of the University of Missouri.

In laboratory courses a deposit is required to pay for the material used and damage to scientific apparatus.

The necessary expenses for the freshman year are estimated in the table given herewith:

Estimated Expenses of Freshman Year:

Library, hospital and incidental fee.....	\$20.00
Room rent and room furnishings.....	35.00
Dining room permit and initiation fee.....	26.00
Caution deposit	8.00
Board for forty weeks	60.00
Books, stationery and school supplies.....	25.00
Laboratory deposits:	
Chemistry, \$5.00; Botany, \$5.00; Dairy, \$5.00;	
Chemistry, \$5.00	20.00
Laundry, \$15.00; Incidentals, \$25.00.....	40.00
<hr/>	
\$234.00	

The above estimate is a minimum and does not include cost of travel, clothing or entertainments, and assumes that the student will live in the University dormitories. The cost of board and room out in town will be higher.

The following interesting table which was prepared by the Dean of the School of Education gives the actual expenses of eighteen senior men and women of the University:

Itemized Statement of Expenses of 9 Men and 9 Women for the Regular Session of 1909-10.

Men	Fees	Board	Rent	Laundry	Books and Stationery	Clothing	Subscriptions and Dues	Amusements	Miscellaneous	Total	Earned	Amount could have saved by economizing
1	\$15	\$135	\$ 45	\$18	\$15	\$ 70	\$10	\$150	\$25	\$483	\$200	\$
2	17	108	29	7	25	115	45	20	35	401	63	125
3	12	145	100	13	12	40	12	3	8	333		70
4	10	75	50	25	12	70	8	20	30	300	250	50
5	10	100	50	15	15	50	10	25	25	290	100	96
6	10	115	35	15	10	50	10	20	20	285	10	25
7	25	112	45	15	15	30	10	10	10	267		
8		77	54	14		14	10	5	56	230	250	
9	5	80	48	10	12	60	5		5	225	60	
Women												
1	10	144	57	35	18	150	5	75	36	530		150
2	60	148	54	19	15	135	3	5	10	449		
3	5	135	50	20	25	100	10	5	50	400		25
4	5	150	50	30	18	75	10	20	20	378		100
5	13	144	54	30	25	75	10	5		356	15	50
6	10	135	54	20	15	75	10	5	10	334		25
7	10	150	51	25	10	50	10	5	10	321		
8	10	140	40	20	15	50	5	10	10	300	250	
9	5	135	45	20	15		20	8	27	275		

PAYING ONE'S WAY THROUGH THE UNIVERSITY

It is variously estimated that from twenty to thirty per cent of the students in the College of Agriculture are paying all or a considerable portion of their expenses by working while attending the University. Such students work for the various departments of the College in caring for the live stock, assisting in the Dairy Department, working for the Experiment Station, helping in the preparation of hog cholera serum, and giving assistance in pruning, spraying and planting on the Horticultural Grounds. About two hundred students were given a greater or less amount of work in these various departments last year.

Students also find employment in Columbia caring for furnaces, waiting on tables, clerking, and in numerous other ways.

DEGREES

The degree of Bachelor of Science in Agriculture is conferred upon all students completing the four-year curriculum in Agriculture for men and the four-year curriculum in Agriculture and Home Economics for women.

The degree of Bachelor of Science in Forestry is conferred upon all students completing the four-year curriculum in Forestry. The degree of Master of Forestry is conferred upon all students completing the five-year curriculum in Forestry.

The degree of Master of Arts is conferred upon students by the Graduate School for one year's graduate study in any of the departments of the College of Agriculture. (See announcement of the Graduate School.)

The degree of Doctor of Philosophy is conferred upon students in the Graduate School who have devoted not less than three years of advanced study to some special branch and have attained exceptional proficiency in original research.

CURRICULA IN THE COLLEGE OF AGRICULTURE

A. Four year curriculum in Agriculture for men, leading to the degree of Bachelor of Science in Agriculture (B. S. in Agr.) (See below.)

B. Four year curriculum in Agriculture and Home Economics for women, leading to the degree of Bachelor of Science in Agriculture (B. S. in Agr.) (See p. 24.)

C. Five year curriculum in Forestry, leading to the degree of



A COLLEGE HOLSTEIN WITH A RECORD NEXT TO JOSEPHINE'S

Master of Forestry (M. F.). Upon the completion of the first four years of this curriculum the degree of Bachelor of Science in Forestry (B. S. in F.) is conferred. (See p. 25.)

D. Two-Year Winter Course in Agriculture. (See p. 27.)

E. Short Course for Women. (See p. 30.)

F. Short Course in Dairying. (See p. 31.)

G. Special Poultry Course. (See p. 32.)

H. A Farmers' Short Course in Agriculture is offered each year in January at Columbia and several Branch Short Courses in Agriculture are given in different localities in Missouri. (See p. 33.)

A. FOUR YEAR CURRICULUM IN AGRICULTURE FOR MEN

All students who are candidates for the degree of Bachelor of Science in Agriculture (B. S. in Agr.) must satisfactorily complete 124 hours of work including the requirement in military science and physical training. Candidates for graduation who matriculate

without having had adequate farm experience, are required to devote the equivalent of two summer vacations or six months to practical work on an approved farm.

The schedule printed below includes the number of hours and the subjects prescribed for the degree in agriculture. Where electives are indicated the student is permitted to select other university subjects. Students who have not had physics in the high school are required to take Physics 1a or 1b.

CURRICULUM *

Freshman—Group I

First Semester.	Second Semester.
Agronomy 1a 3 hrs.	Animal Husbandry 2b... 2 hrs.
Animal Husbandry 1a... 3 "	Chemistry 25b 5 "
Botany 1a 5 "	Dairy Husbandry 1b.... 3 "
Chemistry 4a or 6a..... 5 "	English Bb 5 "
Military Science 1 "	Military Science 1 "
<hr/> 17 hrs.	<hr/> 16 hrs.

Freshman—Group II

First Semester.	Second Semester.
Animal Husbandry 1a... 3 hrs.	Agronomy 1b 3 hrs.
Dairy Husbandry 1a.... 3 "	Animal Husbandry 2b... 2 "
English Ba 5 "	Botany 1b 5 "
Horticulture 1a and 2a.. 5 "	Chemistry 4b or 6b..... 5 "
Military Science 1 "	Military Science 1 "
<hr/> 17 hrs.	<hr/> 16 hrs.

Sophomore—Group I

First Semester.	Second Semester.
Agronomy 2a 5 hrs.	Agricultural Chemistry 1b 5 hrs.
Organic Chemistry 5a... 3 "	Botany 3b 3 "
Veterinary Science 1a... 3 "	Horticulture 1b and 2b.. 5 "
Zoology 5 "	Veterinary Science 2b... 3 "
Physical Training 1 "	Physical Training 1 "
<hr/> 17 hrs.	<hr/> 17 hrs.

*The students during the freshman and sophomore years are divided into two groups. The subjects taken by each group are the same but are taken in a different order.

Sophomore—Group II

First Semester.		Second Semester.	
Agronomy 2a	5 hrs.	Organic Chemistry 5b...	3 hrs.
Botany 3a	3 "	Veterinary Science 2b...	3 "
Chemistry 25a	5 "	Zoology 1b	5 "
Veterinary Science 1a...	3 "	Elective	5 "
Physical Training	1 "	Physical Training	1 "
<hr/>		<hr/>	
17 hrs.		17 hrs.	

Junior

First Semester.		Second Semester.	
Agricultural Chemistry 1a	5 hrs.	Agronomy 100b	5 hrs.
Animal Husbandry 100a.	3 "	Animal Husbandry 101b.	3 "
Botany 100a or Veterinary		Horticulture 100 or 102..	5 "
Science 3a	3 "	<hr/>	
Horticulture 100 or 102..	2 "	13 hrs.	
<hr/>			
13 hrs.			

Senior

First Semester.		Second Semester.	
Entomology 2a	3 hrs.	Elective	15 hrs.
Geology 4a	3 "		
Elective	9 "		
<hr/>			
15 hrs.			

B. FOUR YEAR CURRICULUM FOR WOMEN**Agriculture and Home Economics**

The College of Agriculture offers an excellent course for women who may be interested in certain phases of agriculture and in home economics. This curriculum includes a larger amount of instruction in plant studies and a less amount in such subjects as animal husbandry and veterinary science. The degree of Bachelor of Science in Agriculture is given for the completion of 124 hours' work as indicated in the table below.

CURRICULUM

Freshman

First Semester.		Second Semester.	
Chemistry 4a or 6a.....	5 hrs.	Chemistry 25b	5 hrs.
English 1a	5 "	Home Economics 1b....	5 "
Horticulture 1a and 4a..	5 "	Botany 1b	5 "
Physical Training	1 "	Physical Training	1 "
<hr/>		<hr/>	
16 hrs.		16 hrs.	

Sophomore

First Semester.		Second Semester.	
Chemistry 5a	3 hrs.	Botany 3b	3 hrs.
Agronomy 1a	3 "	Dairying 1b	3 "
Horticulture 8	2 "	Horticulture 8	2 "
English 2	2 "	English 2	2 "
Elective	5 "	Elective	5 "
Physical Training	1 "	Physical Training	1 "
<hr/>		<hr/>	
16 hrs.		16 hrs.	

Junior

First Semester.		Second Semester.	
Home Economics 101a..	3 hrs.	Zoology 1b	5 hrs.
Elective	12 "	Elective	10 "
<hr/>		<hr/>	
15 hrs.		15 hrs.	

Senior

First Semester.		Elective	15 hrs.
Elective	15 hrs.	Second Semester.	

C. FIVE YEAR CURRICULUM IN FORESTRY

The five year curriculum in Forestry trains men for the profession of Forestry. Its graduates are fitted for work with the United States Forest Service, with state forestry departments, and for private forestry.

Nature of the Curriculum. The first three years of work are de-

voted primarily to the sciences underlying the profession. The theoretical principles of forestry are studied at the University, but the practical application of those principles is carried out on the University Forests aggregating 50,000 acres in the Ozark Region. "A Forest Camp" during the Summer Session of the University is established on this forest for eight weeks, where the following subjects, required of third year students in Forestry, are given: Forest mensuration, silviculture, lumbering, and forest surveying. Tents, cots and general camp equipment are furnished for this camp, but each student must provide his own blankets and personal outfit. During the last eight weeks of the spring semester of the fifth year of the course, students will make a working plan of some portion of this forest.

Since most of the subjects outlined in the first two years of the curriculum are pursued in the College of Arts and Science, students who have completed 60 credit hours in that College will be admitted in Forestry at the beginning of the third year.

Degrees. The degree of Master of Forestry is conferred on those students who have successfully fulfilled all the requirements of the five year curriculum. The degree of Bachelor of Science in Forestry is conferred on those students who have fulfilled all the requirements in the curriculum in Forestry at the end of the fourth year.

CURRICULUM

First Year

English Ba	5	Botany 1b	5
Chemistry 4a Inorganic....	5	Chemistry 5b Organic.....	3
Forestry 1 Field Dendrology	1	Forestry 1 Field Dendrology	1
German 1a or French 1a....	5	German 2b or French 2b....	5
Military Science	1	Horticulture 1b	2
		Military Science	1

Second Year

Physical Training.....	1	Botany 100a Physiological..	5
Botany 4b	3	Geology 1a	5
Physics 1b	5	Mathematics 3a	5
Manual Arts 1b Shop Work	2	Manual Arts 5a.....	1
Geology 3b Mineralogy....	3	Physical Training.....	1
Forestry 2b Principles.....	3		

Third Year

Geology 6a Physiography		Civil Engineering 101b.....	2
and Soils	5	Economics 1b	5
Mechanical Drawing 7a.....	3	Entomology 1b	3
Mechanical Engineering 131a	2	Forestry 3b Silvics	5
Zoology 1a	5	Mechanical Engineering 124b	1

Summer Forest Camp—(Italics)

Forestry s4 Mensuration....	2
Forestry s5 Silviculture.....	2
Forestry s6 Lumbering.....	2
Forestry s7 F. Surveying..	2

Fourth Year

Botany 2a Mycology	3	Botany 108b Tree Diseases.	3
Civil Engineering 104a.....	3	Forestry 101b F. Products..	2
Forestry 100a Dendrology..	4	Forestry 103b F. By-products	1
Polit. Sci. 1a Amer. Govt...	5	Forestry 104b F. Practice...	3
Topographic Drawing 3a....	1	Forestry 105b Seeding and	
		Planting	3
		Forestry 106b Wood Tech-	
		nology	3
		Meteorology 1b	1

Fifth Year

Entomology 112a F. Entomology	2	To April first.	
Forestry 107a F. Economics	2	An. Husb. 104b Grazing.....	2
Forestry 108a Forest Law..	3	Forestry 112b Working Plans	1
Forestry 109a Policy and		Forestry 113b F. History...	2
Regulation	4	Forestry 114b Care of Trees.	3
Forestry 110a Valuation....	2	April first to June first.	
Forestry 111a Seminar.....	1	Forestry 115b Investigations	2
Law Business Law.....	2	Forestry 116b Management.	2

D. TWO YEAR WINTER COURSE IN AGRICULTURE

A shorter course in agriculture begins about November 1 and continues for four months during the winter. This course trains men for successful farming. The Two-Year Winter Course offers

the largest amount of practical instruction that it is possible to give in the time scheduled. Any person over 16 years of age may enter this course without examination. All persons completing the subjects in the schedule on the following page will be awarded a certificate certifying that they have completed all the requirements of the Two-Year Winter Course in Agriculture. A special announcement is published describing the plan and purpose of this course and may be had upon application to the Superintendent of Short Courses.

The following schedule of studies is offered in the years and during the terms indicated:



ONE OF THE COLLEGE BROOD MARES

SCHEDULE OF STUDIES FOR TWO-YEAR WINTER COURSE IN AGRICULTURE

First Year.

<i>First Term</i>	Lecture hours.	Laboratory hours.
Grain Judging	21	21
Farm Dairying	14	14
Feeds and Feeding	21	.....
Live Stock Judging.....	.....	21
Breeds of Live Stock.....	14	.....
Shop Work or .....	.....	14
Parliamentary Practice .....	.....	14
Poultry Husbandry	21	.....
<i>Second Term</i>		
Veterinary Science	14	14
Tillage and Cultural Methods.....	14	7
Animal Breeding	21	.....
Orcharding and Small Fruits.....	14	14
Soils of Missouri.....	14	.....
Live Stock Judging... ..	.....	21
Shop Work or .....	.....	14
Landscape Gardening	14	7

Second Year.

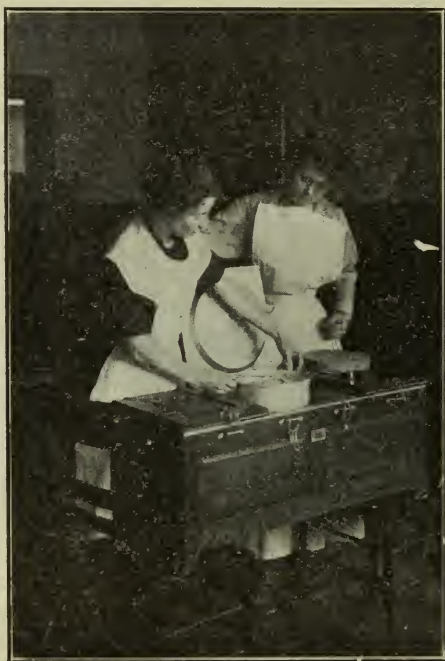
<i>First Term</i>		
Propagation and Cultivation of Plants.....	14	14
Veterinary Science	14	14
Injurious Insects	14	7
Live Stock Production.....	21	.....
Crop Production and Crop Rotation.....	14	7
Farm Accounts .....	.....	14
Soil Management	14	.....
Farm Poultry Practice.....	.....	14
*Live Stock Judging .....	.....	21
<i>Second Term</i>		
Soil Fertility	21	7
Farm Management	14	.....
Milk Production	21	.....
Stock Judging	7	21
Farm Buildings and Machinery.....	14	14
Poultry Husbandry	7	14
Farm Accounts .....	.....	14

*For students who enter in the second term, only.

E. SHORT COURSE FOR WOMEN

The Short Course for Women comprises seven weeks of work and is given during the months of November and December each winter. Every facility is provided for securing, in the time given, the largest possible amount of practical information relating to the care and management of the home and to those agricultural subjects which have a more or less direct bearing upon the household.

The following subjects are offered: Food work; hygiene and sanitation; sewing; laundry work; home care of the sick; propaga-



LEARNING TO OPERATE THE FIRELESS COOKER

tion and cultivation of plants; orcharding and small fruits; landscape gardening; poultry husbandry; farm dairying.

Students are permitted to elect any of these subjects.

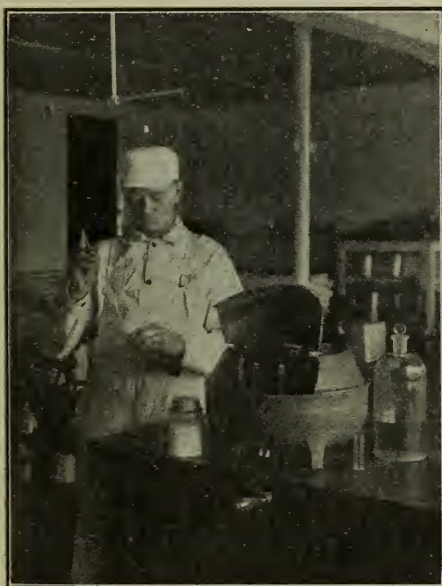
There is no requirement for entrance to this course except that a student must be sixteen years of age or older. The total expenses

of the course need not exceed \$60.00. A probable estimate of expenses is as follows:

Fees	\$ 8.50
Room (with room-mate).....	10.00
Board	30.00
Laundry	4.00
<hr/>	
Total	\$52.50

F. SHORT COURSE IN DAIRYING

Instruction in creamery work has been given each year since the Dairy Department was established in 1901. The growing interest in



THE DAIRYMAN'S BEST FRIEND, THE BABCOCK TESTER

this industry in Missouri makes it advisable to increase the time devoted to this subject and to add instruction in ice cream making. The Short Course in Dairying is offered for the benefit of those who wish to fit themselves for creamery work or to operate large private dairies. It covers seven weeks' time, beginning January 5, 1914. It ends February 21. The laboratory fee for this course is \$5.00.

STATEMENT OF STUDIES

	Lessons
Elements of Dairying	14
Milk Production	21
Testing Milk, Cream, Butter.....	20
Dairy Bacteriology	10
Creamery Butter Making	55
Ice-Cream Making	20

G. SPECIAL POULTRY COURSE

This course fits the needs of the poultry specialist. It takes up the subject of poultry raising, not from the standpoint of the farm flock, but from that of the commercial poultry raiser. The course comprises seven weeks of work. The opening and closing dates correspond to the second term of the Two-Year Winter Course. The total expense need not exceed \$50.00.

Course of Study. Students spend from five to six hours daily in actual poultry work, comprising a study of housing, fattening, killing, marketing, feeding for egg production, incubating and breeding. All the different breeds are studied, together with diseases, their prevention and cure. Ample facilities are provided for poultry work so that students obtain actual practice so far as the time and the season permit in conducting the various operations which are studied.

STATEMENT OF STUDIES

Poultry Management. (Lecture Course). One lecture daily on the subjects of housing, yarding, fattening, dressing, marketing, incubating, brooding, and general care of poultry. This course will include a study of breeds, together with methods of feeding and breeding.

Poultry Management. (Laboratory.) A daily laboratory period in which students will actually do the work covered by the lecture course.

Poultry Practice. A practice course in which the student feeds and cares for laying hens, operates incubators and brooders, and learns the art of poultry raising by actually doing the work.

Other Studies. In addition to the above, regular students in the special poultry house will elect two subjects from the Two-Year Winter Course. Orchardng and Small Fruits is recommended as one of these.

H. FARMERS' SHORT COURSE

During the second week in January each year the College offers a short course in Agriculture for farmers in connection with the Farmers' Week Program arranged in cooperation with the State Board of Agriculture. In this course special lectures and demonstrations in soils and farm crops, animal husbandry, dairying, horticulture and poultry farming are given in the class rooms, laboratories and live stock judging pavilion belonging to the University. Farmers to the number of 1581 were enrolled for this course in 1913. Among the farmers attending there were representatives from 18 states. This course will be given again in January, 1914.

STATEMENT OF COURSES

Explanation:

Courses designated by a number with the letter **a** attached thus: 2a, 120a, are given in the first semester only. Those designated by a number with the letter **b** attached, thus, 2b, 111b, are given in the second semester only. Those designated merely by a number are continuous courses, and are given both semesters. Courses designated by a number with the letter **s** attached, thus, s4, s5, are given during the Summer Session. **Arabic numerals in parenthesis indicate the number of hours credit in a semester.** Courses numbered from 1 to 99 are for under-classmen, from 100 to 199 for upper-classmen, and from 200 to 299 for graduates. For schedule of days and hours, application should be made to the Registrar after August 1.

A full description of courses will be found in the annual catalogue.

AGRICULTURAL CHEMISTRY

1a and 1b. **Agricultural Chemistry.** (5). Mr. Trowbridge, Mr. Moulton.

102a and 102b. **Advanced Agricultural Chemistry.** Mr. Trowbridge, Mr. Moulton, Mr. Haigh.

201. **Seminar.** (1). Mr. Trowbridge.

202a and 202b. **Research in Agricultural Chemistry.** Mr. Trowbridge, Mr. Moulton, Mr. Haigh.

203a. **Chemistry of Proteins.** (3). Mr. Trowbridge.

AGRONOMY

1a and 1b. **Grain Judging.** (3). Mr. Hackleman, Mr. Douglass, Mr. Hudelson, Mr. Evans.

2a and 2b. **Crop Production.** (5). Mr. Hutchison, Mr. Hackleman.

3b. **Soil Physics and Soil Fertility.** (5). Mr. Miller, Mr. LeClair.

4a. **Farm Buildings.** (4). Mr. Kelley.

5b. **Farm Machinery and Farm Motors.** (5). Mr. Kelley.

6a. **Construction Methods.** (3). Mr. Kelley.

7b. **Farm Engineering.** (3). Mr. Kelley.

100b. **Field Crop Management.** (2). Mr. Hutchison, Mr. Douglass.

101b. **Special Grain Judging.** (3). Mr. Hackleman, Mr. Douglass.

102a. **Cereal Breeding.** (2). Mr. Hutchison.

103a. **Soil Management.** (5). Mr. Miller, Mr. LeClair.

200b. **Soil Investigations.** (3). Mr. Miller, Mr. LeClair.

201. **Special Investigations.** Mr. Miller, Mr. Hutchison.

202. **Seminar.** (1). Mr. Miller.

ANIMAL HUSBANDRY

1. **Elementary Live Stock Judging.** (First semester, 3; second semester, 2). Mr. Weaver, Mr. Hackedorn, Mr. Simpson, Mr. Burke.

2a. **Breeds of Live Stock.** (3). Mr. Allison.

3b. **Beef Production.** (2). Mr. Allison.

4b. **Sheep Production.** (1). Mr. Hackedorn.

5b. **Pork Production.** (1). Mr. Weaver.

6b. **Horse Production.** (1). Mr. Trowbridge.

7b. **Advanced Live Stock Judging.** (2). Mr. Trowbridge.

100a. **Animal Nutrition.** (3). Mr. Allison.

101b. **Animal Breeding.** (3). Mr. Trowbridge.

102a. **Advanced Live Stock Judging.** (3). Mr. Trowbridge.

103b. **Stock Farm Management.** (2) Mr. Trowbridge.

104b. **Grazing.** (2). Mr. Allison.

200. **Seminar.** (2). Mr. Trowbridge, Mr. Allison, Mr. Mumford, Mr. Weaver, Mr. Hackedorn.

201. **Experimental Feeding.** Mr. Trowbridge, Mr. Allison, Mr. Mumford

202. **Research in Animal Husbandry.** Mr. Mumford, Mr. Trowbridge, Mr. Allison.

203. **Animal Breeding.** Mr. Mumford, Mr. Trowbridge.
204. **Zoometry.** Mr. Trowbridge.

BOTANY

- 1a and 1b. **General Botany.** (5). Mr. Durand, Mr. Bennett, Miss Keene.
3a and 3b. **General Bacteriology.** (3). Mr. Reed, Mr. Gainey.
100a. **Plant Physiology.** (3). Mr. Reed.
103b. **Soil Bacteriology.** (3). Mr. Gainey.
108b. **Diseases of Forest Trees.** (3). Mr. Reed.

CHEMISTRY

- 4a and 4b, or 6a and 6b. **General Inorganic Chemistry.** (5). Mr. Schlundt, Mr. Morland, Mr. Dutcher, Mr. Spohrer, Mr. Thomson, Mr. Schaefer, Mr. Knudson, Mr. Bishop.
25a and 25b. **Analytical Chemistry.** (5). Mr. Brown, Mr. Gibson, Mr. Carothers.
5a and 5b. **Elementary Organic Chemistry.** (3). Mr. Calvert, Mr. Dutcher, Mr. Schaefer, Mr. Knudson.

DAIRY HUSBANDRY

- 1a and 1b. **Elements of Dairying.** (3). Mr. Rinkle, Mr. White, Mr. Woodward.
100b. **Milk Production.** (4). Mr. Eckles, Mr. White, Mr. Woodward.
101. **Dairy Bacteriology.** (2). Mr. Eckles.
102a. **Cheese Making.** (2). Mr. Rinkle.
103a. **Judging Dairy Cattle.** (1) Mr. White, Mr. Woodward.
105. **Dairy Manufactures.** (2). Mr. Rinkle, Mr. Wobus.
201. **Seminar.** (1). Mr. Eckles.
202. **Research in Dairy Husbandry.** Mr. Eckles.
203. **Special Investigation in Composition of Milk.** Mr. Palmer.
204. **Research in Dairy Manufactures.** Mr. Eckles, Mr. Rinkle.
205. **Dairy Manufactures.** Mr. Rinkle.

ENGLISH

- Ba and Bb. **English Composition and Literature.** (5). Mr. Miller, Mr. Fairchild, Mr. Tisdell, Mr. Burrowes.

ENTOMOLOGY

- 1b. General Entomology. (3). Mr. Haseman.
- 2a. Economic Entomology. (3). Mr. Haseman.
- 103a. Elementary Morphology. (2). Mr. Haseman.
- 104b. Elementary Systematic Entomology. (2). Mr. Haseman.
- 109b. Apiary Culture. (2). Mr. Haseman.
- 110b. Advanced Economic Entomology and Insectary Methods.
(2). Mr. Haseman.
- 111a. Morphology, Histology, and Development of Insects. (3).
Mr. Haseman.
- 200. Research. Mr. Haseman.

FARM MANAGEMENT

- 105a. Farm Accounts. (3). Mr. Johnson, Mr. Foard.
- 110b. Farm Organization. (3). Mr. Johnson.
- 112. Farm Administration. (2). Mr. Johnson.
- 114. Seminar. Mr. Doane, Mr. Johnson.
- 201. Investigation of Types of Farming. Mr. Johnson, Mr.
Foard.
- 202. Investigation of Cost of Production and the Distribution of
Labor. Mr. Johnson, Mr. Foard.
- 207. Investigation of Systems of Farm or Rural Practices and
Organizations. Mr. Johnson, Mr. Foard.

FORESTRY

- 1. Field Dendrology. (1). Mr. Ferguson.
- 2b. Principles of Forestry. (3). Mr. Howard.
- 3b. Silvics. (5). Mr. Ferguson.
- s4. Forest Mensuration. (2). Mr. Ferguson.
- s5. Silviculture. (2). Mr. Ferguson.
- s6. Lumbering. (2).
- s7. Forest Surveying and Engineering. (2). Mr. Ferguson.
- 100a. Dendrology. (4). Mr. Ferguson.
- 101b. Forest Products. (2).
- 103b. Forest By-Products. (1).
- 104b. Forest Practice. (3). Mr. Ferguson.
- 105b. Seeding and Planting. (3). Mr. Ferguson.
- 106b. Wood Technology. (3).
- 107a. Forest Economics. (2). Mr. Howard.
- 108a. Forest Law. (3).
- 109a. Forest Policy and Regulation. (4). Mr. Ferguson.

- 110a. Valuation. (2). Mr. Ferguson.
- 111a. Forest Seminar. (1).
- 112b. Working Plans. (1). Mr. Ferguson.
- 113b. Forest History and Administration. (2).
- 114b. Care of Trees and Parks. (3).
- 115b. Forest Investigations. (2).
- 116b. Field Work in Forest Management. (2).

GEOLGY

- 2a. Geology of Soils. (3). Mr. Marbut.
- 108b. Soils of the United States. (3). Mr. Marbut.

HORTICULTURE

- 1a and 1b. Plant Propagation. (2). Mr. Howard, Mr. Chandler.
- 2a and 2b. Vegetable Gardening. (3). Mr. Whitten.
- 3a and 3b. The Evolution of Cultivated Plants. (2). Mr. Whitten.
- 100. Fruit Production. (2). Mr. Chandler.
- 102. Landscape Gardening. (2). Mr. Major.
- 103. Floriculture. (1). Mr. Major.
- 104. Fruit Judging. (1). Mr. Howard.
- 105. Advanced Pomology. (3). Mr. Whitten.
- 106b. Olericulture. (3). Mr. Whitten.
- 107. Ornamental Plants. (1 to 3). Mr. Major.
- 108. Elementary Landscape Design. (3). Mr. Major.
- 109. Special Problems. Mr. Whitten, Mr. Howard, Mr. Chandler, Mr. Major.
- 200. Special Investigation. Mr. Whitten, Mr. Howard, Mr. Chandler, Mr. Major.

HOME ECONOMICS

- 1a or 1b. Introduction to Home Economics. (5). Miss Stanley.
- 101a. House Sanitation. (3). Miss Stanley.

AGRICULTURAL JOURNALISM

- 10a and 10b. Agricultural Journalism. (3). Mr. Ross.

METEOROLOGY

- 1b. Meteorology. (1). Mr. Reeder.

POULTRY HUSBANDRY

- 1a. Elementary Poultry Raising. (3) Mr. Kempster.
- 2b. Elementary Poultry Raising. (3). Mr. Kempster.
- 3a. Feeding Practice. (2). Mr. Kempster.
- 4a. Poultry Judging. (3). Mr. Kempster.
- 5b. Poultry Farm Management. (3). Mr. Kempster.
- 6b. Incubating and Brooding Practice. (3). Mr. Kempster.

RURAL ECONOMICS.

- 1a. Rural Political Economy. (2). Mr. Gromer.
- 100b. Rural Economics. (2). Mr. Gromer.

RURAL SOCIOLOGY

- 115a. Rural Sociology. (2). Mr. Parmelee.

VETERINARY SCIENCE.

- 1a. Veterinary Anatomy. (3). Mr. Backus.
- 2b. Veterinary Physiology. (3). Mr. Connaway, Mr. Backus.
- 3a. Veterinary Medicine and Surgery. (3). Mr. Backus.
- 104. Topographic Veterinary Anatomy. Mr. Connaway.
- 105b. Veterinary Medicine. (3). Mr. Backus.
- 106a. Veterinary Surgery and Obstetrics. (3). Mr. Backus.
- 107. Contagious, Infectious and Parasitic Diseases of Farm Animals. (3). Mr. Connaway.
- 209. Investigation. Mr. Connaway.

ZOOLOGY

- 1a and 1b. General Zoology. (5). Mr. Curtis.

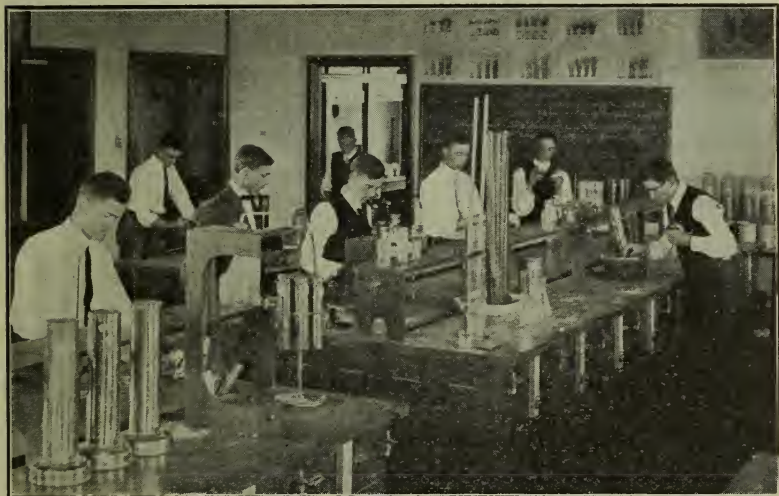
ACTIVITIES OF THE COLLEGE OF AGRICULTURE**STUDENT ACTIVITIES**

The agricultural students maintain numerous thriving organizations founded for the purpose of promoting various important phases of college life.

The Agricultural Club. This union of all the agricultural students

in the University has been a power for good in promoting college spirit and loyalty to the College of Agriculture. The organization has worked unselfishly for the best good of all and is worthy of the active support of every agricultural student.

The College Farmer. The Agricultural College paper is published monthly and its excellent management deserves great credit for the uniformly high character of this publication. The purpose of the



A BUSY CORNER IN THE SOILS LABORATORY

paper is to present reliable articles on agricultural subjects and to bring to the attention of the farmers and others the work of the College and Station. The editors and managers are elected annually by the Agricultural Club.

The County Fair. Once a year the agricultural students give a county fair. This event calls for the display of considerable ability in organization and is useful in stimulating the ingenuity of individual students. A live stock, agricultural, and horticultural display divides attention with more recreative features provided by the students.

Colman Literary Society. Public speaking is encouraged in this organization. The membership is limited and the work is of a high order of excellence.

The Farmers Debating Society. This society was formed to train men in public debating and it has been of great value to the

students who participate. Members of the faculty assist in directing the work of this club.

The Grange. The interests and responsibilities of the agricultural student do not end with his immediate surroundings in college. He justly feels that he owes a duty to the farming class to which he belongs. In the Grange faculty and students meet and discuss the broader phases of agriculture which are of interest to them as farmers rather than students.

Alpha Zeta and Delta Theta Sigma. These are honorary societies whose membership is limited to students who attain high intellectual rank as students. It is considered an honor to be elected to membership in these associations.

Young Men's Christian Association. The agricultural students have always taken an active interest in the Young Men's Christian Association of the University. This association owns a \$60,000 stone building devoted to the religious and social life of the students of the University. In the building are rooms for the accommodation of 80 students; in addition there are quarters for the secretary and other officers of the association; an auditorium for meetings, and various committee rooms used by the student organizations. New students are advised to confer with the secretary of the Young Men's Christian Association in reference to finding suitable places to board and room. Students desiring employment should also consult the man in charge of this work in the Y. M. C. A. Building.

STATE ACTIVITIES OF THE COLLEGE

Teaching Agriculture Out in the State. Last year men from the College of Agriculture gave instruction in farm methods to nearly 110,000 Missouri farmers. This was accomplished through the medium of special agricultural trains, Branch Short Courses, Farmers' Institutes and special lectures.

Branch Short Courses were held at the following places: Bowling Green, Sedalia, Kahoka, Eagleville, Maywood, Diamond, Maryville, Elsberry, Trenton, O'Fallon, and Callao. The total attendance at these courses was 862. At each course two or more men from the College of Agriculture gave instruction in Animal Husbandry, Farm Crops and Soils, Orchardring, Dairying and Poultry Raising. Each of these courses was five days in length.

Helping the Rural Schools. The Professor of Rural Education addressed last year more than 31,000 people on the subject of agriculture in the rural schools and on general rural school betterment. Personal visits were made to sixty schools. More than 3,000 bulletins and circulars on the subject of agriculture were placed directly



AT WORK IN THE GRAIN JUDGING LABORATORY

in the hands of teachers and students. Approximately 2,000 teachers were addressed on the subject of re-organizing the course of study for rural schools with agriculture as the central subject.

Summer School of Agriculture. In the regular summer school special courses in agriculture are offered for the benefit of teachers who wish to teach the subject in the rural and high schools of the State. More than 150 teachers were enrolled for this work in the summer session of 1912.

Short Course for Farmers. Each year the College of Agriculture offers a special short course for farmers. This course is given early in January and is commonly spoken of as Farmers' Week. Distinct courses are offered in Soils and Farm Crops, Live Stock Farming, Poultry Raising, Dairying, and Horticulture. In 1913 there were 1581 farmers enrolled in this course. The work continues for one week.

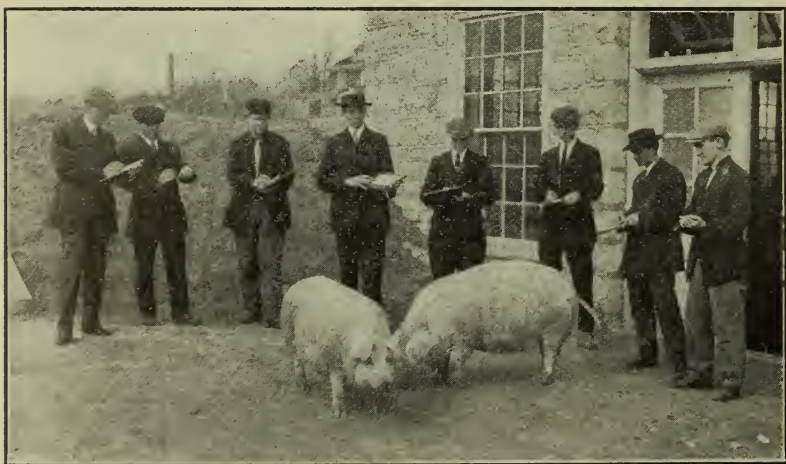
Demonstration Farms. Under the direction of the Department of Farm Management a number of demonstration farms have been established in various sections of Missouri. These farms are conducted according to plans furnished by the College of Agriculture. In order to spread the influence of these successful methods, meetings are held at intervals at which farmers from the surrounding country meet and discuss methods and results.

County Farm Advisers. Eight Missouri counties have entered into a plan of cooperation with the College of Agriculture and the United States Department of Agriculture whereby a farm adviser is permanently located in each of these counties. The work of the farm adviser is to assist the farmers of his county to apply to their own farms the practical methods which have been worked out by

the investigations of the Experiment Station. The following counties have farm advisers: Buchanan, Jackson, Pettis, Marion, Cape Girardeau, Johnson, Dade, Audrain.

Judging Livestock at County Fairs. The Agricultural College supplied fifty-three county fairs in forty-two counties with expert judges of livestock in 1912. These judges were trained for the work by the Animal Husbandry Department. It required one hundred and three days and the services of fourteen men to supply the demand for judges. The total number of animals passed upon for the award of prizes was 7,026. There were 313,600 people attending these fairs. By this means the College is using the most efficient and practical method of helping stockmen and farmers to proficiency in the selection and development of profitable types of animals.

Judging Corn Shows. The Department of Agronomy supplied judges of grain at fifty-six local shows in fifty-six counties during 1912-13. This work required a total of 636 days and the services of



SCORING A PAIR OF CHESTER WHITE SOWS

nine men. The number of samples of grain passed upon was 1934. These shows were attended by 52,045 people.

THE EXPERIMENT STATION

The Experiment Station is a Division of the College of Agriculture. Its function is original investigation for the benefit of agriculture.

The establishment of the Experiment Station as a division of the College of Agriculture has had a profound influence upon the instructional activities of the institution. It has emphasized the fundamental importance of original research and the investigations in progress have furnished the best sort of material for demonstrations. Advanced students are utilized as much as possible for assisting in experimental work and are thus enabled to acquire valuable practical experience. Some of the results of the work of the Experiment Station are mentioned below:

RESULTS OF WORK OF THE EXPERIMENT STATION

Co-operation with Missouri Farmers. The Agricultural Experiment Station is conducting co-operative work with 204 farmers. Practically every county in the State is represented in this list of co-operators. The co-operative work includes experiments in the growing of spring and winter oats, potatoes, corn and barley, together with work in farm management, orchard spraying and fertilization, and the use of pure bred sires in dairy herds. These experiments have demonstrated the best methods of growing special crops in special localities of the State, and have also shown the varieties of corn and small grains best adapted to different portions of the State. The horticultural investigations have proven the profitable-ness of fertilizing and spraying fruit trees and bushes. By the use of pure bred sires, dairy farm co-operators have in some cases increased their profits more than twenty per cent.

Outlying Experiment Fields. Sixteen Outlying Experiment Fields have been established on characteristic soil areas of the State. On these fields there are fourteen soil experiments, five experiments with field crops and four drainage experiments. Each of these investigations has for its definite aim the supplying of local information which cannot be worked out at Columbia, where the Agricultural College is located, because of climatic and soil differences.

On the soil experiment field at Lamar in Southwest Missouri it has been shown that corn may be increased from twenty bushels to forty-five bushels an acre. In the same locality wheat has been increased twelve bushels an acre.

Good soil management on one of the Station's outlying experiment fields located at Victoria increased the clover yield from one-half ton to two tons an acre. The increased net profit was \$6.00 an acre.

In Christian County corn yields have been increased sixteen and a half bushels an acre and clover one ton on each acre by the appli-



LONG COURSE MEN GRADING HAY

cation of results secured by the Missouri Experiment Station on its Billings field.

Soil experiments on the Station's field at Monroe City in Northeast Missouri have increased the yield of wheat by sixteen bushels an acre with a corresponding increase in the net profit.

Seed Testing Laboratory. The College of Agriculture in co-operation with the United States Department of Agriculture, maintains at Columbia a free seed testing laboratory. Any farmer or seedsman in the State may send samples of seed to the College and have them tested without cost. Tests are made for adulteration, mixture with noxious weeds and foreign matter, and for vitality. In 1912 more than 1500 samples were tested.

Inspecting Commercial Fertilizers. The Agricultural Experiment Station is authorized under the laws of Missouri to inspect fertilizers sold to Missouri farmers. All fertilizers must be registered with the Experiment Station and a certified statement placed on file giving the guaranteed amount of plant food present in any particular brand. The college inspectors collect samples which are analyzed to determine whether fertilizers are true to claims. Several thousand analyses are made each year in carrying on this work.

Preventing Hog Cholera. More than 160,000 doses of hog cholera serum were distributed by the College of Agriculture last year. This serum was used in 2,313 herds. Men from the College applied the serum in 917 herds. Eighty-five per cent of the hogs

treated were saved, besides checking the spread of the disease to a large extent. This represents a saving to Missouri farmers of a million or more dollars.

Results of Soil Survey. As a result of the investigations relating to the soil survey of Missouri, there has already been accomplished a general preliminary soil survey of the whole State. A more careful survey of the Ozark region and of Northeast Missouri has been made. A thorough and detailed agricultural and soil survey of the following counties in Missouri has been completed: Atchison, Audrain, Barton, Bates, Cape Girardeau, Carroll, Cass, Cedar, Cooper, Crawford, Franklin, Howell, Jackson, Laclede, Lincoln, Macon, Marion, Miller, Pemiscot, Pike, Platte, Putnam, Saline, Scotland, Shelby, St. Charles, St. Louis, Stoddard, Sullivan, and Webster.

The results of these investigations have been published in bulletin form, in part by the United States Department of Agriculture, co-operating with this Experiment Station and in part by the Missouri Experiment Station.

Enough has already been learned of the crop adaptation of various soil types to suggest the kind of crops which seem to thrive best on particular soil areas.

Results from Co-operative Experiments. The average yield of corn in Missouri in 1909 was 27.4 bushels an acre. The average yield of corn on the farms of twenty-five farmers, co-operating with the Agricultural Experiment Station in the same year, was 48 bushels an acre. Each of these co-operators has become a demonstrator of the successful methods of corn growing which have been recommended by the Experiment Station.

Travelling Dairy Instructor. The College of Agriculture is actively assisting in the development of the dairy industry of the State. In conducting this phase of its work a traveling dairy instructor is maintained, whose whole time is devoted to organizing and instructing dairy associations and individual farmers.

Boys' Corn Growing Contest. In order to encourage boys under twenty years of age in the growing of improved varieties of corn according to improved methods of culture there has been established a Missouri Boys' Corn Growing Contest. Last year 3,000 boys were enrolled. Approximately 2,500 acres of corn were involved in this state-wide contest.

General Correspondence. One of the chief means by which the College of Agriculture is of benefit to Missouri farmers is through the medium of correspondence. Last year more than 63,000 letters were received and answered by members of the Experiment Station staff. This is an increase of 21.5 per cent over the preceding year.

Free Circulars and Bulletins. During the year ending June 30, 1912, twenty-one new publications and three re-prints were issued. The total number of pages represented by these publications is 2,888,500. The following are now available and will be sent free to farmers of Missouri who will write for them addressing the Agricultural Experiment Station, Columbia, Missouri:

Bulletin 54, The Strawberry False Worm.

The Strawberry Leaf-Roller.

Bulletin 55, Pruning Peach Trees.

Bulletin 84, Soil Experiments on the Prairie Silt Loam of Southwest Missouri.

Bulletin 88, Soil Management in the Ozark Region.

Bulletin 102, Combating Orchard and Garden Enemies.

Bulletin 103, The Silo for Missouri Farmers.

Bulletin 104, The Evergreen Bagworm.

Bulletin 106, Co-operative Experiments with Alfalfa.

Bulletin 107, Farm Poultry House Construction.

Bulletin 109, Inspection of Commercial Fertilizers.

Bulletin 110, Forage Crop Rotations for Pork Production.

Bulletin 111, Report of Director.

Bulletin 112, Corn Silage for Fattening Two-Year-Old Steers.

Circular 37, Variation in Cream Tests.

Circular 38, Principles of Maintaining Soil Fertility.

Circular 40, The Seeding of Alfalfa.

Circular 41, Directions for Testing Milk on the Farm.

Circular 42, The Seeding of Clovers and Grasses.

Circular 44, Feeding for Milk Production.

Circular 46, Factors Influencing the Yield of Oats.

Circular 47, Raising Calves on Skim Milk.

Circular 48, The Plastered or Gurler Silo.

Circular 50, Selection of Corn for Seed and Show.

Circular 51, How to Prolong the Life of Fence Posts.

Circular 53, The Seeding of Cowpeas.

Circular 54, Co-operative Experiments of the Department of Agronomy.

Circular 56, Some Factors in Wheat Production.

Circular 57, Keeping Records of Dairy Cows.

Circular 61, Docking and Castrating Lambs.

Circular 62, The Chinch Bug and Its Control.

SOME POSITIONS HELD BY GRADUATES OF THE COLLEGE OF AGRICULTURE

President of the Kansas Agricultural College.
Chief of the National Bureau of Plant Industry, U. S. D. A.
Chief in Nutrition, Ohio Experiment Station.
Dean of the Louisiana College of Agriculture.
Dean of the Arkansas College of Agriculture.
Director of the Louisiana Experiment Station.
Director of the Arkansas Experiment Station.
Director in Charge of Experiment Station, Porto Rico.
Acting Director, Bureau of Agriculture, Philippine Islands.
Director of Agricultural Education for the Argentine.
Professor of Rural Education, State College, Pennsylvania.
Professor of Animal Husbandry, University of Alabama.
Professor of Dairy Husbandry, University of Vermont.
Professor of Animal Husbandry, State College, Pennsylvania.
Professor of Animal Husbandry, University of Tennessee.
Professor of Horticulture, University of Missouri.
Professor of Agricultural Chemistry, Arkansas.
Professor of Veterinary Science, University of Missouri.
Professor of Dairying, University of Utah.
Professor of Agriculture, Illinois College, Jacksonville.
Professor of Botany, State University of Virginia.
Professor of Dairy Husbandry, Porto Rico.
Professor of Botany, State College of New Hampshire.
Formerly Professor of Dairy Husbandry, University of Tennessee,
now manager of a Missouri dairy farm.
Professor of Agricultural Chemistry, University of Oklahoma.
Professor of Agronomy, University of Delaware.
Professor of Agriculture, State Normal School.
Professor of Agriculture, State Normal School.
Professor of Farm Crops, Iowa State College, Ames, Iowa.
Professor of Dairying, Kansas State Agricultural College.
Professor of Horticulture and Botany, Oklahoma Experiment Station, Stillwater, Oklahoma.
Professor of Comparative Medicine, West Raleigh, North Carolina.
Head of the Agronomy Department, University of Idaho.
Head of the Dairy and Animal Pathology Departments, Georgia.
Assistant Professor of Horticulture, Arkansas.
Assistant Professor of Agronomy, North Dakota.
Assistant Professor of Dairy Husbandry, Purdue University, Indiana.
Assistant Professor of Agronomy, University of Missouri.

Assistant Professor of Animal Husbandry, Kansas Agricultural College.

Assistant Professor of Agronomy, University of Maine.

Assistant Professor of Animal Husbandry, Montana State College of Agriculture.

Assistant Professor of Bacteriology, State Agricultural College, Ames, Iowa.

Assistant Professor of Pomology, Massachusetts Agricultural College.

Instructor in Agronomy, University of California.

Instructor in Animal Husbandry and Veterinary Science, Arizona.

Instructor in Dairy Bacteriology, Iowa State College.

Instructor in Animal Husbandry, Kansas State Agricultural College.

Instructor in Organic Chemistry and Veterinary Science, Kansas City Veterinary College.

Instructor in Plant Pathology, Cornell University, Ithaca, New York.

Instructor in Horticulture, University of Washington.

Instructor in Horticulture, University of Nebraska.

Instructor in Grain Crops, Iowa State College, Ames, Iowa.

Instructor in Horticulture, Iowa State College, Ames, Iowa.

Instructor in Botany, Pennsylvania State College.

Assistant in Department of Nautical Instruments, Naval Observatory.

Assistant State Entomologist in New York.

Assistant in Horticulture, University of Virginia.

Assistant in Animal Husbandry, Kansas Agricultural College.

Assistant in Botany, Cornell University.

Assistant in Animal Husbandry, Purdue University.

Assistant Chemist in Charge of Fertilizer Experiments, Arkansas.

Assistant in Plant Physiology, Cornell University, New York.

Assistant in Botany, State College, Pennsylvania.

Assistant in Plant Physiology, Florida.

Assistant in Truck Farming, Truck Experiment Station, Norfolk, Virginia.

Assistant in Dairy Husbandry, Pennsylvania State College.

Assistant in Farm Home Management, U. S. D. A.

Assistant in Animal Husbandry, Georgia Agricultural College.

Assistant in Soil Survey, U. S. D. A.

Assistant in Animal Husbandry, Clemson Agricultural College.

Assistant in Agronomy, New Mexico Agricultural College.

Assistant in Horticulture, Purdue University.

Special Agent, U. S. D. A.

Agriculturist, National Bureau of Plant Industry.
Department of Agriculture, U. S. Office of Farm Management.
Pomologist in charge of Viticultural Investigation, U. S. Department of Agriculture.
Agricultural Expert at the National Tribunal, Cairo, Egypt.
Manager of Harbor Hill Farms, Long Island, New York.
Expert in Bureau of Plant Industry, U. S. D. A.
Superintendent of Agricultural Education for the Indians.
Members of Bureau of Agriculture, Philippines.
Dairyman, Agricultural Department, University of Idaho.
Junior Dairyman, U. S. Department of Agriculture.
Chemist in Charge of Citrus Experiment Station, Riverside, California.
Experimentalist, Animal Husbandry, Iowa State College, Ames, Iowa.
Agriculturist, State School of Agriculture, Lawton, Oklahoma.
Superintendent, Missouri Training School Farm, Boonville, Missouri.
Assistant Editor of a farm paper, Oregon.
Manager of 2000 acres in Northwest Missouri.
Teacher in Wentworth Military School, Lexington, Missouri.
Associate Editor of the Breeders Special, Kansas City, Missouri.
Manager of a large fruit farm in Idaho.
Manager of large landed interests in Ray County, Missouri.
Manager of 1000 acre farm at Concordia, Missouri.
Lumber interest, Greenville, Missouri.
Lawyer, St. Louis, Missouri.
Veterinary Inspector, St. Louis, Missouri.
Banker, Memphis, Missouri.
Veterinary Surgeon, Novelty, Missouri.
Manager of a 500 acre farm, Crescent, Missouri.
Ranch Owner, California.
Manager of a 1000 acre stock farm, Centralia, Boone County, Missouri.
County Commissioner of Schools, Missouri.
Editor Agricultural Paper, St. Louis, Missouri.
Chemist, Coke Works, Pennsylvania.
With Dairy Extension, U. S. D. A.
Manager of a large stock farm, Nemaha, Nebraska.
Manager of the dairy department of the Clarence Mackey Estates, Long Island.
Manager of a large stock and grain farm in Lafayette County, Missouri.
Dairyman, Wisconsin.

Athletic Director, Y. M. C. A.

Superintendent of Schools, Columbia, Missouri.

District Leader, Office of Farm Management, U. S. D. A.
ment of Agriculture.

POSITIONS IN THE UNIVERSITY OF MISSOURI HELD BY GRADUATES OF THE COLLEGE OF AGRICULTURE.

Two Assistant Professors of Agricultural Chemistry.

Three Assistants in Agricultural Chemistry.

Professor of Agronomy.

Assistant in Agronomy.

Two Instructors in Animal Husbandry.

Two Assistants in Animal Husbandry.

Assistant Professor of Dairy Husbandry.

Instructor in Dairy Husbandry.

Three Assistants in Dairy Husbandry.

Professor of Farm Management.

Assistant in Farm Management.

Professor of Horticulture.

Assistant Professor of Horticulture.

Two Assistants in Horticulture.

Professor of Veterinary Science.

Three Assistants in Veterinary Science.

Instructor in Soil Survey.

Three Assistants in Soil Survey.

The positions to which members of the 1913 graduating class were appointed before the June commencement are listed below:

Agricultural representative of the Chinese Government.

Assistant in Farm Management, University of Missouri.

Assistant in Agricultural Chemistry, University of Missouri.

Three Assistants in Soil Survey, University of Missouri.

Secretary, Farmer's Exchange.

Assistant in Seed Laboratory, U. S. D. A., Washington, D. C.

Scholarship in Horticulture, University of Missouri.

Assistant in Agronomy, University of Missouri.

Assistant in Animal Husbandry, Pennsylvania State College.

Scholarship in Agronomy, University of Missouri.

Institute Lecturer, State Board of Agriculture.

Scholarship in Botany, University of Missouri.

Assistant Editor, Orange Judd Farmer.

Assistant in the manufacture of Hog Cholera Serum, University of Missouri.

Fruit Farmer.

Fertilizer Salesman, Swift and Company.

Three teachers of Agriculture.

Nine farmers.

In Charge of Bacteriological Laboratory, St. Louis Dairy Company.

THE FACULTY

ALBERT ROSS HILL, A. B., Ph. D., LL. D.,
President of the University.

FREDERICK BLACKMAR MUMFORD, B. S., M. S.,
Professor of Animal Husbandry, Dean of the Faculty and
Director of the Agricultural Experiment Station.

HENRY MARVIN BELDEN, A. B., Ph. D.,
Professor of English.

EDWIN BAYER BRANSON, A. B., A. M., Ph. D.,
Professor of Geology and Mineralogy.

CHESTER LELAND BREWER,
Professor of Physical Education.

WILLIAM GEORGE BROWN, B. S., Ph. D.,
Professor of Technical Chemistry.

SIDNEY CALVERT, B. S., A. M.,
Professor of Organic Chemistry.

JOHN WALDO CONNAWAY, D. V. S., M. D.,
Professor of Veterinary and Comparative Medicine, and Veterinarian to the Agricultural Experiment Station.

WINTERTON CONWAY CURTIS, A. B., A. M., Ph. D.,
Professor of Zoology.

DUANE HOWARD DOANE, B. S. in Agr., M. S.,
Professor of Farm Management, and State Leader of Farm Management Investigations.

FREDERICK DUNLAP, F. E.,
Professor of Forestry.

LIEUTENANT CHARLES McH. EBY,
Professor of Military Science and Tactics.

CLARENCE HENRY ECKLES, B. S. in Agr., M. S.,
Professor of Dairy Husbandry, and in charge of the Dairy Department of the Agricultural Experiment Station.

- WALTER LAFAYETTE HOWARD, B. S., M. S., Ph. D.,
Professor of Horticulture.
- GEORGE LEFEVRE, A. B., Ph. D.,
Professor of Zoology.
- CURTIS FLETCHER MARBUT, B. S., A. M.,
Professor of Geology and Mineralogy, and in charge of the
State Soil Survey.
- MERRITT FINLEY MILLER, B. S., M. S. A.,
Professor of Agronomy, and Agronomist to the Agricultural
Experiment Station.
- GEORGE MATTHEW REED, A. B., A. M., Ph. D.,
Professor of Botany.
- HERMAN SCHLUNDT., B. S., M. S., Ph. D.,
Professor of Physical Chemistry.
- EDWIN A. TROWBRIDGE, B. S. in Agr.,
Professor of Animal Husbandry.
- PERRY FOX TROWBRIDGE, Ph. B., A. M., Ph. D.,
Professor of Agricultural Chemistry, and Chemist to the Agri-
cultural Experiment Station.
- JOHN CHARLES WHITTEN, B. S., M. S., Ph. D.,
Professor of Horticulture, and Horticulturist to the Agri-
cultural Experiment Station.
- HARRY ORSON ALLISON, B. S.,
Associate Professor of Animal Husbandry.
- ELIAS JUDAH DURAND, A. B., D. Sc.,
Associate Professor of Botany.
- ARTHUR HENRY RALPH FAIRCHILD, A. B., A. M., Ph. D.,
Associate Professor of English.
- LEE SELDON BACKUS, D. V. M.,
Assistant Professor of Veterinary Science.
- AMY LOUISE DANIELS, B. S. in Ed.,
Assistant Professor of Home Economics.
- THOMAS RANKIN DOUGLASS, B. S. in Agr.,
Assistant Professor of Agronomy.
- RICHARD HUFF EMBERSON, B. S.,
Assistant Professor of Rural Education.
- JAMES ANDREW GIBSON, B. A., M. A.,
Assistant Professor of Chemistry.

- JOHN B. GINGERY, D. V. M.,
Assistant Professor of Veterinary Science.
- SAMUEL DAVID GROMER, S. B., Pe. B., A. M.,
Assistant Professor of Agricultural Economics.
- JAY COURTLAND HACKLEMAN, M. A.,
Assistant Professor of Agronomy.
- LEONARD HASEMAN, A. B., A. M., Ph. D.,
Assistant Professor of Entomology, Entomologist to the Agricultural Experiment Station, and State Nursery Inspector.
- CLAUDE BURTON HUTCHISON, B. S. in Agr.,
Assistant Professor of Agronomy.
- OLIVER RAY JOHNSON, B. S., A. M.,
Assistant Professor of Farm Management.
- HARRY LAVERNE, KEMPSTER, B. S.,
Assistant Professor of Poultry Husbandry.
- HORACE FAIRCHILD MAJOR, B. S. in Agr.,
Assistant Professor of Landscape Gardening.
- ARTHUR J. MEYER,
Assistant to the Dean and Director, and Superintendent of Short Courses.
- CHARLES ROBERT MOULTON, B. S., M. S. in Agr., Ph. D.,
Assistant Professor of Agricultural Chemistry.
- LEROY SHELDON PALMER, Ch. E., A. M., Ph. D.,
Assistant Professor of Dairy Chemistry and Assistant Chemist to the Experiment Station.
- *GEORGE REEDER, Section Director, U. S. W. B.,
Lecturer on Meteorology and Climatology.
- LORIN GEORGE RINKLE, B. S., M. S. in Agr.,
Assistant Professor of Dairy Husbandry.
- LOUISE STANLEY, B. S., M. A.,
Assistant Professor of Home Economics.
- PHILIP MARTIN BRANDT, B. S. in Agr., A. M.,
Instructor in Dairy Husbandry.
- PERCY LEROY GAINEY, B. S. A., M. A.,
Instructor in Botany.

*In the service of the U. S. Department of Agriculture.

HOWARD HACKEDORN, B. S. in Agr.,
Instructor in Animal Husbandry.

ERNEST CECIL PEGG, A. B., M. F.,
Instructor in Forestry.

LUTHER ABRAHAM WEAVER, B. S. in Agr.,
Instructor in Animal Husbandry.

RUTH BEATTIE, A. B.,
Assistant in Botany.

*In the service of the U. S. Department of Agriculture.

RALPH STEPHEN BESSE, B. S. in Agr.,
Assistant in Farm Management.

LLOYD BYRON BURKE, B. S. in Agr.,
Assistant in Animal Husbandry.

NELLE CARTER, B. S. in H. E.,
Assistant in Home Economics.

CLYDE E. DEARDORFF, B. S. in Agr.,
Assistant in Soil Survey.

ALBERT RAY EVANS, B. S. in Agr.,
Assistant in Agronomy.

GEORGE W. FREIBERG, B. S. A.,
Assistant in Botany.

BEULAH M. GILLES, A. B.,
Assistant in Botany.

LEONARD DIXON HAIGH, B. S., M. S., Ph. D.,
Assistant in Agricultural Chemistry.

ROBERT R. HUDELSON, B. S. in Agr.,
Assistant in Agronomy.

M. A. RAYMOND KELLEY, B. S. in M. E.,
Assistant in Agronomy.

EDMUND W. KNOBEL, B. S. in Agr.,
Assistant in Soil Survey.

HENRY H. KRUSEKOPF, B. S. in Agr.,
Assistant in Soil Survey.

CARLOS AMIE LECLAIR, M. S. in Agr., A. M.
Assistant in Agronomy.

EMMA BEE MUNDY, A. B.,
Assistant in Botany.

- THOMAS CLEVELAND REED, B. S. in Agr.,
Assistant in Dairy Husbandry.
- WILLIAM MICHAEL REGAN, B. S. in Agr.,
Assistant in Dairy Husbandry.
- HELMAR ROSENTHAL, A. B.,
Assistant in Agricultural Chemistry.
- SILAS T. SIMPSON, B. S. in Agr.,
Assistant in Animal Husbandry.
- ORSINO CECIL SMITH, A. B.,
Assistant in Agricultural Chemistry.
- BOLESLAUS SZYMONIAK, B. S. in Agr.,
Assistant in Horticulture.
- A. T. SWEET, A. B.,
Assistant in Soil Survey.
- THOMAS J. TALBERT, B. S. in Agr.,
Assistant in Entomology and Deputy Inspector of Nurseries.
- TALMADGE THOMAS TUCKER, B. S. in Agr.,
Assistant in Veterinary Science.
- ELMER ELLSWORTH VANATTA, B. S. in Agr., M. S. in Agr.,
Assistant in Agricultural Chemistry.
- WILLIAM ISAAC WATKINS, B. S. in Agr.,
Assistant in Soil Survey.
- CLEO CLAUDE WIGGANS, B. S. in Agr., A. M.,
Assistant in Horticulture.
- EDWIN GARVER WOODWARD, B. S. in Agr., A. M.,
Assistant in Dairy Husbandry.
- WINONA WOODWARD, B. S. in H. E., B. S. in Ed.,
Assistant in Home Economics.
- JEFFERSON D. BLACKWELL,
Student Assistant in Agronomy.
- CUTHBERT WRIGHT HICKMAN,
Student Assistant in Animal Husbandry.
- AUSTIN DANIEL KILHAM,
Student Assistant in Horticulture.
- C. E. MANGELS,
Student Assistant in Agricultural Chemistry.

CHARLES D. MATTHEWS, Jr.,
Student Assistant in Botany.

ELIZABETH MONROE,
Student Assistant in Botany.

VINCENT WILLIAM RIDLEY,
Student Assistant in Horticulture.

C. FLOYD SAPPER,
Student Assistant in Agronomy.

WENCEL T. WASEL,
Student Assistant in Animal Husbandry.

GENERAL STATEMENT

The fundamental aim of the University of Missouri is the development of the highest and most efficient type of citizen. For the purpose of attaining its aim, the University furnishes ample facilities for liberal education and for thorough professional training. The University is a part of the public educational system of the State.

In the course of seventy-four years of development, new divisions of instruction have been organized in response to the needs of vocations followed by citizens of the State.

ORGANIZATION

The work of the University is now carried on in the following Colleges and Schools:

- College of Arts and Science
- College of Agriculture
- School of Education
- School of Law
- School of Journalism
- School of Medicine
- School of Engineering
- School of Mines and Metallurgy
- Graduate School
- Extension Division

All of these divisions are at Columbia with the exception of the School of Mines and Metallurgy, which is located at Rolla. In addition, emphasis is given particular lines of work by the establishment of minor divisions, the chief of which are the Agricultural Experiment Station, the Engineering Experiment Station, and the Military School.

LOCATION

The University of Missouri is located at Columbia, a town situated half way between St. Louis and Kansas City near the center of the State. It is reached by the Wabash and the Missouri, Kansas and Texas Railways. Columbia is a progressive and prosperous town having doubled its population in the last few years. It has nearly twenty miles of paved streets.

Columbia may be characterized as a town of schools, homes and churches, with enough of industrialism to make it efficient. It offers the conveniences of a larger city without the counter attractions. The student is a predominant factor in Columbia.

EQUIPMENT

The University grounds cover more than eight hundred acres. The main divisions are in the Quadrangle, the Horticultural Grounds, the Physical Education Grounds, and the Agricultural College Farm.

The following University buildings are located at Columbia: Academic Hall; Laws Observatory; separate buildings for Chemistry, Agricultural Chemistry, Physics, Zoology and Geology, Law, Engineering, Manual Arts; three power houses; Medical Laboratory Building; Parker Memorial Hospital including the Busch Clinic; Agricultural Building; Horticultural Building; Green Houses; Live-Stock Judging, Dairy, Farm Machinery, and Veterinary Buildings, and the Agricultural College Farm Barns and Buildings; Switzler Hall, for the School of Journalism; Benton and Lathrop Halls, dormitories for men; Read Hall, the dormitory for women; Rothwell Gymnasium; the houses for the President of the University and the Dean of the College of Agriculture; the High School, and the Elementary School Buildings used for practice schools in the School of Education.

FOR FURTHER INFORMATION

Full information regarding the University is given in the catalogue which will be sent on request without charge. For this or special bulletins of the Graduate School, College of Arts and Science, College of Agriculture, School of Education, School of Law, School of Medicine, School of Engineering, School of Journalism, and the Extension Division, write to

DEAN OF THE UNIVERSITY FACULTY,
University of Missouri,
Columbia, Missouri.

UNIVERSITY CALENDAR AT COLUMBIA

Summer Session.

1913.

June 12,	Thursday, Registration.	
June 13,	Friday, Organization of Classes.	
July 4,	Friday, Holiday.	
August 12,	Tuesday, Lectures Close.	
August 13,	Wednesday	} Examinations.
August 14,	Thursday	

First Semester.

September 15, 16, 17,	Monday, Tuesday and Wednesday, Entrance Examinations and Registration.	
September 18,	Thursday, at 8 A. M. Class Work in all Divisions Begins.	
September 18,	Thursday, at 8 A. M. Opening Convocation.	
November 27,	Thursday, Thanksgiving Holiday.	
December 19,	Friday, at 4 P. M. to	} Christmas Holidays.
1914.		
January 5,	Monday, at 8 A. M.	} Mid-Year Examinations.
January 24,	Saturday, to	
January 31,	Saturday	

Second Semester.

January 29, 30, 31,	Thursday, Friday and Saturday, Entrance Examinations.	
February 2, 3,	Monday and Tuesday, Registration, Second Semester.	
February 4,	Wednesday, at 8 A. M. Class Work in all Divisions Begins.	
February 5,	Thursday, at 10 A. M. Opening Convocation.	
April 9,	Thursday, at 4 P. M. to	} Easter Holidays.
April 15,	Wednesday, at 8 A. M.	
May 31,	Sunday, Baccalaureate Address.	
June 1, 2,	Monday and Tuesday, Senior Class Exercises.	
June 3,	Wednesday, Alumni Day.	
June 4,	Thursday, Commencement Day.	
June 5,	Friday to	} Final Examinations.
June 12,	Friday	

THE UNIVERSITY OF MISSOURI BULLETIN

GENERAL SERIES

FOR 1913 VOLUME 14

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University Publisher

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Number 2, February	College of Arts and Science
Number 3, March	Graduate School
Number 4, April	School of Education
Number 5, May	Catalogue
Number 6, June	School of Medicine
Number 7, July	School of Law
Number 8, August	School of Journalism
Number 9, September	School of Engineering
Number 10, October	College of Agriculture
Number 11, November	College of Agriculture (Short Courses)
Number 12, December	Second Semester Courses

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THE UNIVERSITY OF MISSOURI BULLETIN

GENERAL SERIES

VOLUME 14

NUMBER 11

ANNOUNCEMENT
OF THE
TWO YEAR WINTER COURSE AND
OTHER SHORT COURSES
COLLEGE OF AGRICULTURE
1913-14



UNIVERSITY OF MISSOURI
COLUMBIA, MISSOURI
November, 1913



THE
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CALENDAR OF SHORT COURSES

First Term.

1913.

November 3, Monday: Registration, Two Year Winter Course, and Short Course for Women.

November 4, Tuesday: Classes begin.

November 27, Thursday: Thanksgiving Holiday.

December 19, Friday at 4 P. M. to

1914.

January 5, Monday, at 8 A. M.

} Christmas Holidays.

Second Term.

January 5, Monday: Registration, Two Year Winter Course; Special Poultry Course and Short Course in Dairying.

January 6, Tuesday: Classes begin.

January 12, Monday to

January 16, Friday

} Farmers' Week.

February 21, Saturday, at 4 P. M.: Short Courses close.



THE SHORT COURSE GRADUATING CLASS OF 1913
Thirty-three students received certificates of graduation from the Two-Year Winter Course in February, 1913.

AN AGRICULTURAL OPPORTUNITY

This bulletin is written for ambitious young men and women who believe in keeping abreast of the times. It points young men to a way by which they can become better farmers, and young women to a way by which they can become better homemakers.

In an attempt to make the Missouri College of Agriculture serve all the people of Missouri, courses have been established not only for high school graduates but for young men and women who have never had a chance to attend a high school. Four courses have been provided especially for students from the common schools. They are:

The Two Year Winter Course (See page 6)

The Short Course for Women (See page 23)

The Short Course in Dairying (See page 29)

The Special Poultry Course (See page 31)

Each of these courses is made up of the strictly practical things that people need to know in every day life on the farm and in the home. While the courses are arranged primarily for students who have not had a high school training, still the work is so elastic that men and women who have attended not only high schools, but colleges as well, find in these courses ample opportunity for their best effort. It teaches the practical things and very often the person who has had an extended educational training feels the need of knowing just the things which are outlined in the following pages.

Seventeen years ago the Short Course in Agriculture was established by the Missouri College of Agriculture. Since then 1,880 students have taken advantage of the opportunity offered by this practical course. Its influence has been statewide. Every county in Missouri, except four, has sent students to the Short Course. Young men in other states have seen the splendid opportunity afforded by the Short Course at the Missouri College of Agriculture and they have come from many states to share in the good things which this course offers.

One of the most promising indications of progress in the Two Year Winter Course is the increasing number of students who are completing the work of all four terms and receiving certificates of graduation. In the spring of 1911 certificates were granted to seven men. In February of 1912 fifteen men received certificates. Last year the graduating class numbered thirty-two. This is growth in the right direction. It proves that the young men who enroll for this work are men of persistence and purpose. The graduates of the Two Year Winter Course are succeeding often beyond their own expectations. They will continue to succeed. The "handwriting on the wall" is plain.

THE TWO YEAR WINTER COURSE IN AGRICULTURE (Short Course.)

The Two Year Winter Course in Agriculture is a practical course for practical farmers. It is especially arranged to meet the needs of the man who wants to farm on a business basis,—make money, live comfortably, and be an active worker for the community in which he lives. It teaches men:

- How to raise larger crops with less labor, and better live stock with less expense;
- How to select and care for seed corn and other grains so that, instead of "running out," they will become better from year to year;
- How to handle soils so there will be no waste of soil moisture or fertility;
- How to rotate crops and what crops to grow so that the farm will increase in fertility year after year;
- How to apply commercial fertilizers and handle barnyard manure for best results;
- How to plan farm buildings with proper regard for ventilation, light, heat, and cleanliness;
- How to operate all kinds of farm machinery including gasoline engines;
- How to select and judge all classes and breeds of cattle, horses, sheep, hogs and poultry;
- How to figure balanced rations for farm stock and combine feeds so as to secure the greatest gains at lowest cost;
- How to apply the principles of breeding so as to bring about improvement in all kinds of livestock;
- How to manage a stock farm so as to assure generous returns for investment and labor;
- How to recognize and successfully combat those insect pests that endanger health and destroy farm crops;
- How to care for sick animals and perform simple surgical operations;
- How to make postmortem examinations, vaccinate against black leg, test for tuberculosis, immunize against hog cholera;
- How to propagate trees and shrubs by grafting and budding;
- How to manage hotbeds and care for the home vegetable garden;
- How to plant, cultivate, prune, and spray fruit trees as well as how to gather, pack, and market the fruit;
- How to lay out and care for the home grounds so as to make them at once attractive and convenient;
- How to classify soils and adapt cropping systems to the various soil types;

How to care for edged tools and do all ordinary carpentry and blacksmithing with special reference to work along lines which are particularly useful on the farm;

How to breed, feed, and manage poultry; operate incubators and brooders; and build good, useful poultry houses;

How to organize farmers' clubs and secure social and business co-operation between people in the country;

How to operate cream separators, test milk for butter fat, make individual tests of dairy cows, handle milk and cream either for direct sale or to make up into butter;

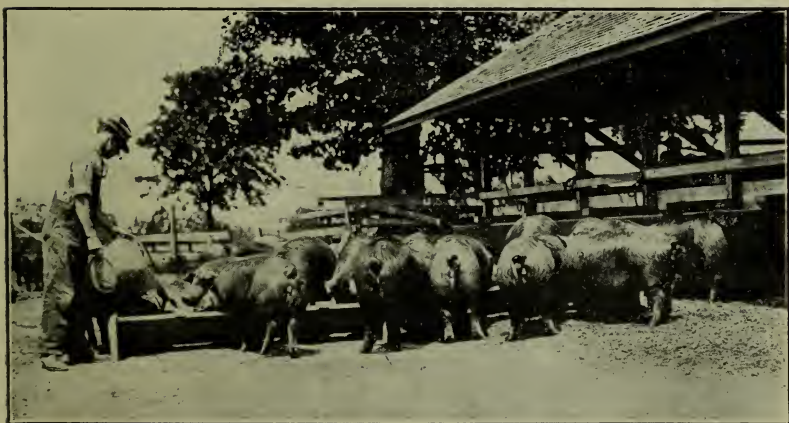
How to select high producing dairy cows and how to feed and care for them in order to get the best returns;

How to feed and care for dairy calves;

How to manage a farm on a business basis and keep an accurate record of all matters pertaining to the management of a farm.

These are a few of the many things taught in the four terms of the Two Year Winter Course. Wherever possible the teaching is done by actually having students do the work instead of merely telling them how it ought to be done.

It trains for successful farming.



PUTTING A COLLEGE TRAINING INTO PRACTICE

Short Course men are thoroughly drilled in the science of profitable feeding of live stock. With the present shortage of feed, every pound must be utilized to advantage.

A GOOD INVESTMENT

Men who have completed the work of the Two Year Winter Course in Agriculture have had their earning capacity increased fifty to five hundred dollars per year. Thus, it is seen that the money expended in taking the Short Course is really invested at from twenty to two hundred fifty per cent per annum. From a dividend paying standpoint, there are few investments open to young men in Missouri which can in any way compare with this.

Whether a man returns to his own or to his father's farm, or whether he enters the employ of another, the Short Course will prove equally valuable. Year by year the College receives an increasing number of inquiries for students to work on farms at wages materially higher than are paid to untrained men. The demand for trained farm managers is steadily growing. The services of men who farm with their heads as well as their hands are being eagerly sought for. Any wide-awake young man may place himself in a position to take advantage of these opportunities by entering the Two Year Winter Course and completing its requirements in a satisfactory manner.

WHO MAY ATTEND

No examinations are necessary to enter the Two Year Winter Course. The only requirement is that a student must be 16 years of age or over. Experience in farm work is a great help in mastering the details of the work offered. Men of mature years who have had the responsibility of managing farms will find the course of great and lasting value. Among the most enthusiastic students who have taken the course and who have given it their hearty endorsement are some of the large land owners and farmers of Missouri.

A common school education is not absolutely necessary, but it is a distinct advantage. Students who have had a complete high school training are advised to enter one of the four year curricula in Agriculture described on page 33. For those who are not able to do this, however, the Two Year Winter Course offers a large field for study and training.

The course is open to both men and women.

FEEES AND EXPENSES

The entire cost of one term including board, room, books, fees, and other necessary expenses need not exceed \$55.00.

Tuition is free.

Each student, however, pays an incidental fee of \$5.00 and a

laboratory fee of \$1.00 each is charged in veterinary science, dairy husbandry, and shop work. The cost of books and other material will be small since instruction is largely given by means of lectures and demonstrations.

A student should bring at least \$25.00 with him when he comes to Columbia because the charges for fees, books, and advance payments which secure cheap board and room must all be made the first week.

ROOM AND BOARD

The University has two dormitories. There are generally a few rooms vacant in these dormitories when the Short Course students reach Columbia. These rooms can be rented for approximately \$1.00 per week. The University Dining Club offers board at \$2.50 per week. The University also maintains a Cafeteria for both men and women. Here students pay according to the articles of food ordered. It is run at actual cost to the University.

Most Short Course students will secure room and board at the various private rooming and boarding houses near the University. The cost of private room and board varies from \$3.75 to \$5.00 per week.

UNIVERSITY Y. M. C. A.

The Young Men's Christian Association has arranged to help all Short Course students find places to room and board. A thorough canvass of the town is made and all available rooms and boarding places together with prices are listed for the benefit of new students who are not familiar with the town.

The Y. M. C. A. Employment Bureau helps needy students to find work to pay expenses.

There is a dormitory for men in the Y. M. C. A. Building. A few Short Course men may find very desirable rooms in this dormitory.

The Y. M. C. A. provides a social center for men students in the Two Year Winter Course. The building has club rooms, parlors, reading rooms, swimming pool, bowling alley, pool room, and other features attractive to young men. The Association conducts Bible classes, religious meetings, and encourages young men in sane, religious thinking and helpful service.

WORKING ONE'S WAY THROUGH THE SHORT COURSE

It is not generally advisable for students to try to earn their way by doing outside work while taking the Short Course. The

cost is so small that any student can save enough from one summer's wages to pay his expenses for two terms (one winter) at the University. Men who are able to attend for only seven weeks out of the entire twelve months or, at most, fourteen weeks, can hardly afford to spend their time in doing odd jobs for which they can receive only fifteen cents an hour. Their time is worth much more than this if spent in hard study.

Moreover, it is difficult for Short Course students to find employment. Most of the chances for work are taken by the regular four year students before the opening of the Short Course. This is especially true of work in connection with the various departments of the College of Agriculture. Short Course students who must of necessity work their way should confer with the Y. M. C. A. Employment Bureau, from which some assistance may be expected.

CERTIFICATE OF GRADUATION

Every student who spends two winters at the College of Agriculture and completes in a satisfactory manner all the work required of Short Course students in that time is given a certificate of graduation from the Two Year Winter Course signed by the President of the University and the Dean of the College of Agriculture. It should be the ambition of every student who enrolls in the Two Year Winter Course to complete all the required work and receive a certificate. In order to do this it is not necessary to take all four terms in succession. A student may take only one term each winter if this arrangement is more convenient. Each term is a unit by itself. Studies are not carried through more than one term so that the student who is able to stay for only seven weeks completes all the work as far as he goes. Thus he is enabled to return at any later time and go on with his work the same as though there had been no interruption.

THE COURSE OF STUDY

On the following page is given a schedule of studies as offered in the four terms of the Two Year Winter Course. Arrangements are being perfected whereby second year students may have an opportunity to elect other subjects not included in the regular schedule. These subjects will be announced at the time of registration. In these elective subjects will be included those which are not strictly agricultural but which have a direct bearing on rural life. Their purpose will be to broaden the views of the graduates of the Two Year Winter Course, thereby more completely fitting them for leadership in their respective communities.

SCHEDULE OF STUDIES

FIRST YEAR.

First Term:

	Lecture Hours	Laboratory Hours
Cereal Crops and Grain Judging	21	21
Orcharding and Small Fruits or Farm Dairying..	14	14
Feeds and Feeding	21	..
Live Stock Judging .....	..	21
Breeds of Live Stock	14	..
Poultry Husbandry	21	..
Farm Carpentry, Blacksmithing or Parliamentary Practice .....	..	14

Second Term:

Veterinary Science	14	14
Soil Tillage	14	7
Animal Breeding	21	..
Orcharding and Small Fruits or Farm Dairying..	14	14
Soils of Missouri	14	..
Live Stock Judging .....	..	21
Farm Carpentry, Blacksmithing..... or Landscape Gardening.....	14	7

SECOND YEAR.

First Term:

	Lecture Hours	Laboratory Hours
*Live Stock Judging .....	..	21
Propagation and Cultivation of Plants	14	14
Veterinary Science	14	14
Injurious Insects	14	7
Live Stock Production	21	..
Forage Crops	21	..
Farm Accounts .....	..	21
Farm Poultry Practice (Elective).....	..	14

Second Term:

Soil Fertility	21	7
Farm Management	14	..
Milk Production	21	..
Stock Judging .....	..	21
Farm Buildings and Machinery	14	14
Advanced Corn Judging	7	14

*Only for students who have had but one term of Live Stock Judging.

STATEMENT OF STUDIES

I. Agronomy.

Mr. Miller, Mr. Hutchison, Mr. Hackleman, Mr. Douglass, Mr. LeClair, Mr. Hudleson, Mr. Kelley, Mr. Evans.

1aw. Cereal Crops and Grain Judging. This course has to do with the principles concerned in the production of corn, oats, wheat, rye, barley and other grain crops. The methods of preparing the seed bed, planting, cultivating and harvesting these various crops are considered in detail together with methods of crop improvement. The laboratory work has to do with a study of the various types of these crops and methods of judging and grading commercial grain. Three lectures and three grain judging periods a week.

2bw. Soil Tillage. This course is designed to make the student familiar with the best methods of tillage and cultivation. The laws of physics as affecting the handling of soils are studied and illustrated by laboratory and field practice. Special emphasis is laid on the control of the moisture supply in soil, the maintaining of good tilth, the preparation of seed beds and the eradication of weeds. Two lectures and one practical exercise a week.



PRACTICE IN MIXING FERTILIZERS.

Short Course students learn how to mix fertilizers to suit different soils and different crops.

3aw. Forage Crops. This course has to do with the principles of the production and handling of clovers, cowpeas, soybeans, alfalfa, rape, sorghums, grasses and other forage crops. Special attention is given the management of these crops and their use in cropping systems adapted to Missouri farms. Three lectures a week.

4bw. Soil Fertility, Manures and Fertilizers. This course includes a discussion of soil fertility and the methods of maintaining the productivity of soils. The relation of

various crops to soil exhaustion and to soil improvement is considered and the methods of handling manures and fertilizers are given particular attention. The course is designed to bring out the principles of soil handling and fertilizing in order to maintain the highest state of productiveness. The results of experiments on various fields being conducted by the Agricultural Experiment Station at Columbia and in different parts of Missouri are of great service in indicating the proper treatment for the different soil types of the state. Practice in mixing fertilizers and in making simple tests of soils will be a feature of this course. Three lectures and one practical exercise a week.

5bw. Farm Building and Farm Machinery. This course has to do with the planning and constructing farm buildings and the arrangement of buildings on the average farm. The use of concrete for building purposes and the construction of farm conveniences will also be considered. Practice in designing and drafting plans for farm buildings forms an important feature of this work. This course also has to do with the construction and handling of farm machines and the adaptation of various forms of power to the conditions on the average farm. Practical exercises and demonstrations with various farm machines in the machinery laboratory of the University form a large part of the work in this course. Two lectures and two practical exercises a week.

II. Animal Husbandry.

Mr. Mumford, Mr. Trowbridge, Mr. Allison, Mr. Weaver, Mr. Hackerdorn, Mr. Hughes, Mr. Brashear.

1aw. Stock Judging. In this course, the score card will be studied with special reference to the scale of points adopted by the various breed associations. The purpose of the course, together with **2aw**, is to thoroughly familiarize students with the types of all our common breeds of stock. Score card work and competitive judging. Three laboratory periods a week.

1bw. Stock Judging. A repetition of **1aw**. Given in the second term for new students.

2aw. Breeds of Live Stock. This course is given in connection with **1aw**. It takes up the history, adaptability, feeding qualities and general utility of the leading breeds of live stock produced in this country. Two lectures per week.

3aw. Feeds and Feeding. This course properly precedes course **5aw**. It includes a study of the composition, digestibility and relative feeding value of the various hays, forage, grains, mill feeds, and miscellaneous feeding stuffs; the preservation and preparation of coarse fodder; grinding, steaming and cooking food; feeding standards

and the calculation of rations for the various classes of live stock. Three lectures per week.

4bw. Animal Breeding. A course in the principles and methods necessary in the successful breeding and improvement of farm animals. While this consists of the fundamental principles of breeding it is particularly planned for the practical breeder, and those phases of the work are emphasized which appeal directly to the student engaged in the production of live stock on the farm. Three lectures per week.

5aw. Live Stock Production. Twenty-one lectures with assigned reading on practical management of the various classes. It includes a consideration of shelter, feeding for growth or maintenance, breeding, equipment for handling properly, marketing, etc. It should be preceded by course 3aw. Three lectures per week.

6aw. Stock Judging. A further study of breeds of animals with special attention to their relative values for the production of meat, milk and wool or for draft and speed. This course includes a study of market types and show ring classifications, along with a detailed consideration of differences between market and breed types. For first year students. Three laboratory periods each week.

6bw. Live Stock Judging. A repetition of 6aw for students who have had 1aw or 1bw.

7bw. Advanced Live Stock Judging. In this course students are required to place classes of live stock after the manner followed by judges at county fairs and live stock shows. There will be little



SOME OF THE COLLEGE PUREBREDS

Good sheep on the College Farm inspire Short Course students to become good sheep raisers.



ANGUS CALVES FROM THE COLLEGE SHOW HERD

It is worth the time any student spends at Columbia to handle live stock of this type and learn all about how they were bred and fed.

work with the score card except by way of review. The student taking this course is assumed to have had courses 1aw and 6bw. For second year students only; three laboratory periods each week.

III. Dairy Husbandry.

Mr. Eckles, Mr. Rinkle, Mr. Brandt, Mr. Reed, Mr. Regan.

1aw. **Farm Dairying.** The aim of this course is to give the student such instruction regarding dairy work as will be of value to anyone engaged in farming whether especially interested in the production of dairy products for market or not. The course consists of two lectures and two laboratory periods a week in one term of the first year of the Short Course. It includes the nature, composition and properties of milk, its use as food, the separation of cream, and butter making under farm conditions, testing cream and milk for butter fat, testing individual cows, the proper methods of handling milk and cream.

2bw. **Milk Production.** This course consists of three lectures a week in the second term of the second year. The purpose of this course is to give practical instruction regarding the dairy cow on the farm, including adaptation of breeds for various purposes, selection of individual cows by type and by records, keeping milk and

butter fat records, selecting the bull, raising calves, feeding cows, general care and management. The large herd of dairy cattle belonging to the College and other nearby dairy herds are used in demonstrating and illustrating this course.

IV. Economic Entomology.

Mr. Haseman, Mr. Talbert.

1aw. **Injurious and Helpful Insects.** This course consists of two lectures and one field trip a week. A careful study is made of all the important insect pests of crops, stored products, live stock and those affecting health as well as those forms which are useful as food or beneficial in controlling others which are pests. A general discussion is given of the life history, transformation, appearance, nature of injury, and best remedies for the control of each pest. The lecture work is supplemented with a study of the actual specimens in the department collections and with observations in the field where the pests are found.



**STUDYING THE PEACH TREE
BORER**

The first step in combating farm pests is to know the insect and its whole life history.

A special feature of this course is a series of lectures and demonstrations on practical bee-keeping on the farm.

V. Farm Management.

Mr. Johnson.

6bw. **General Farm Management.** This course has for its main object the making of a practical farm plan. Each student makes a map of his home farm, and with this as a basis replans the practical farm operations, considering the profitable outcome and the increasing of the soil fertility as the main object. A crop rotation will be planned, the best and most approved methods for handling the crops within this rotation, the profitable utilization of these crops by stock, the amount of stock that can be kept, and methods or systems of

live stock management, including their purchase, housing and sale, are points that will be dealt with in detail.

3aw. **Farm Accounts.** This course consists of twenty-one laboratory periods the first term of the second year. It is arranged to make, first of all, a thorough study of taking inventories and keeping financial records. More time is devoted to this than any other phase of accounting because it is more important. Labor, feeding and dairy records are also studied. Monthly statements and annual summaries are made. Practical data for all work is used.

VI. Geology.

Mr. Krusekopf.

1aw. **The Soils of Missouri.** This course takes up a study of the origin and classification of the soils of Missouri and their relations to the geology of the State. A careful study is made of the character and crop adaptation of the soils in one or more counties representative of each of the broader soil divisions these studies being based on the work of the Soil Survey. Attention is also given to the loss of soils through erosion, to the best methods of checking it, and to the subjects of drainage as applied to Missouri soils.

VII. Horticulture.

Mr. Whitten, Mr. Howard, Mr. Major, Mr. Szymoniak, Mr. Wiggins.

1aw. **Propagation and Cultivation of Plants.** First term, second year. The propagation of cultivated plants by means of seeds and buds, including the treatment of refractory seeds to secure germination; the propagation of plants from cuttings; by root tips; layering; budding, grafting, etc. General nursery practices, together with the management of hotbeds, transplanting, etc. Fourteen lectures and fourteen laboratory periods.

2bw. **Orcharding and Small Fruits.** A consideration of fruit soils and the planting, cultivation, pruning and general management of orchard trees and small fruits, together with the marketing, grading and general disposition of the same. Fourteen lectures and fourteen laboratory periods.

3bw. **Landscape Gardening.** A study of the common trees, shrubs and flowering plants used in the decoration of home grounds, and a proper grouping of the same to give a neat and pleasing effect to the farm or city home. Methods of making and preserving lawns, management and cultivation of decorative plants and flowers, pruning and spraying of shade and ornamental trees are features of the work in Landscape Gardening. Fourteen lectures and seven laboratory periods.

VIII. Parliamentary Practice.

Mr. Meyer.

1aw. **Agricultural Organization and Co-operation Among Farmers.** A consideration of the purposes and effects of local Farmers' Clubs, Granges, County Agricultural Societies, etc., together with methods of organizing and conducting same. The course will also include a study of the powers and duties of electors and officers at district school meetings. Roberts' Rules of Order will be used as a text. Elective in the first term of the first year. Two periods each week.

IX. Shop Work.

Mr. Griffiths.

1aw and 1bw. **Woodwork.** Students are taught the use and care of tools, the principles and functions of carpentry with special reference to carpentry of the farm. Elective in both terms. Two periods a week.

2aw and 2bw. **Forging.** This course includes instruction in welding, bending, forming and drawing iron and tempering steel.



SHORT COURSE MEN IN THE CARPENTER SHOP

By means of small models which the students build, the fundamental principles of farm carpentry and care of edged tools is taught in an effective manner.

In applying these principles, constant reference will be had to uses of the farm. Elective in both terms. Two periods a week.

X. Poultry Husbandry.

Mr. Kempster, Mr. Webster.

1aw. **General Poultry Raising.** A lecture course for farmers raising poultry on the farm. This course deals with the housing, raising of poultry, handling the stock for market, and egg production, killing, dressing, diseases, hatching and rearing the young, etc. It teaches the person on the farm how to more efficiently handle the poultry under farm conditions.

2aw. **Farm Poultry Practice.** A laboratory course which is elective for second year short course men. This course acquaints the student with the operations around the poultry house such as killing and dressing, making and applying louse powder, building brood coops, etc., thus familiarizing him with the every-day practices of the person engaged in handling poultry.

XI. Slaughtering and Home-Curing of Meat.

Mr. Trowbridge.

Farm Butchering, Meat Cutting and Curing. This course is open to second year students only. It includes actual practice in slaughtering animals under farm conditions together with cutting and curing the meat. A detailed study is made of the various cuts of a carcass and the relative values of each. The course takes up in some detail the economical disposition of the various cheaper cuts.

XII. Veterinary Science.

Mr. Connaway, Mr. Backus, Mr. Gingery, Mr. Tucker, Mr. Spence.

1bw. **Elementary Veterinary Science.** First year, second term. During this term fourteen lectures and fourteen laboratory exercises are given on the followings subjects: elements of the structure and functions of the animal body, hygiene of farm animals, indications of disease, general care and treatment of sick animals, lameness, simple surgical procedures, diseases incident to pregnancy. The laboratory and clinical work consists of practical work and demonstrations and includes a brief study of the skeletons of farm animals, the casting and control of animals, dressing of wounds, preparation and application of bandages, administration of medicines, dehorning of cattle, castration, spaying.

2aw. **Veterinary Medicine and Surgery.** Fourteen lectures and fourteen clinical exercises and demonstrations. The following subjects will be considered: The teeth, their significance as regards age, also their defects and treatment; diseases of the alimentary tract, indigestion, colic, etc.; diseases and injuries of the bones, limbs and joints; diseases of the skin and eyes; diseases of the respiratory and nervous system; parasites and contagious diseases. The laboratory and clinical demonstrations will include dressing of the teeth, use of antiseptics, methods of disinfection, shoeing of horses, vaccinating against black leg, immunizing against hog cholera, methods of making post-mortem examinations. Tuberculosis and hog cholera will receive special attention.

FREE CASH SCHOLARSHIPS

State Fair Scholarships. The Missouri State Fair management offers two \$50 scholarships to be awarded at the 1913 State Fair which is held at Sedalia, Missouri, September 27th to October 3rd. One of these scholarships will be given to the best judge of live-stock and the other to the best judge of corn. These scholarships are not available for men who have ever attended a College of Agriculture. For details concerning the manner in which awards will be made, write to Sec'y John T. Stinson, Sedalia, Missouri.

Missouri Women Farmers Club Scholarship. The Missouri Women Farmers Club again repeats its offer of a \$25 cash scholarship to encourage women in the study of agriculture. The award will be made on the basis of a corn growing contest. The money must be used by the winner to defray expenses incurred in taking the work of the Two Year Winter Course in Agriculture. Particulars may be obtained by writing to T. R. Douglass, Sec'y State Corn Growers' Association, Columbia, Missouri.

PRIZES AND MEDALS

At the close of the Two Year Winter Course in Agriculture each year there is held a live stock judging contest to which all second year men who have not participated in a previous contest, are eligible. The contest furnishes a practical test of a student's ability to judge live stock at live stock shows.

The following medals will be awarded to Short Course students in the contest which will be held in February, 1914:

The Holland Percheron Medal. A gold medal valued at fifty dollars given by Charles Holland, breeder of Percheron horses, Springfield, Mo., for the student winning the highest number of points in judging horses and mules.

The Caldwell Aberdeen Angus Cattle Medal. A gold medal offered by E. F. and E. H. Caldwell, of Burlington Junction, Mo., breeders of Aberdeen Angus cattle. The medal will be awarded to the best judge of beef cattle.

The Sheley & Clatterbuck Duroc Jersey Swine Judging Medal. A gold medal valued at ten dollars, offered by Sheley & Clatterbuck of New Bloomfield, Missouri, breeders of Duroc Jersey swine. It will be awarded to the best judge of swine.

The Sneed Shropshire Sheep Judging Medal. A ten dollar medal offered by W. S. & G. V. Sneed of Sedalia, Missouri, breeders of Shropshire sheep. The medal will be awarded to the best judge of sheep.

STUDENT ACTIVITIES

Short Course Literary Society.—All students taking the Two Year Winter Course in Agriculture are urged to become members of the Short Course Literary Society. This organization is entirely under the control of Short Course students who elect their own officers, make their own rules and regulations, appoint committees and transact the usual business of such a society. Meetings are held every Friday evening at which a program consisting of music, recitations, readings and debates is presented. It furnishes one of the most enjoyable and profitable features of the course and no student should fail to take advantage of the opportunities it offers.

Other Organizations.—The Short Course offers opportunities to



THE SECOND YEAR CLASS, 1912-13.

The number of students who return for the second year's work increases steadily from year to year.

become familiar with the work and purposes of the Grange, the Farmers' Union, and numerous other state and local farmers' societies, all of which are open to students of the Short Course. Many will find it distinctly to their personal advantage to become members of one or more of these organizations.



FIRST YEAR STUDENTS IN THE SHORT COURSE, 1912-13

When men of this type take hold of the farms of Missouri its agricultural prosperity will be doubly assured. There are thousands of bright young men on the farms of the state whose pictures ought to be in the above group.

SHORT COURSE FOR WOMEN

The home is the most important factor in farm life. The problem of how to keep the boy on the farm is exceeded in importance only by one other and that is: How to keep the girl in the home. Thinking men everywhere have agreed that the solution of the problem so far as the boy is concerned lies in training him to be a skilled farmer, and in showing him that there is more to farming than mere manual labor.

Surely the girl should be given at least an equal opportunity to learn of the new ideas in the management of home affairs. The waste of material things in the home and still more important the waste of time, strength, and energy, is generally the result of not knowing how to make the best of the resources at hand. It is for the purpose of securing a more economical administration of household affairs in these different lines that the course is offered.

THE PLAN OF THE COURSE

The Short Course for Women lasts for seven weeks. It begins November 3, 1913, and ends December 19. Work is given in those subjects with which a woman as a home maker should be familiar. Economy in the management of household affairs is the key note of the whole course. The student learns how to save materials, time, and labor. By means of lectures she is taught why certain things and certain methods are better than others. Then, by actually doing the work in the various laboratories, she applies the knowledge gained in the lecture room to practical cooking, sewing, millinery, butter making, etc. It is a practical course which trains the hand as well as the intellect. It offers the kind of knowledge which a woman can apply in her every-day housework and her every-day relations to the farm.

Students are given an opportunity to choose the special studies in which they are most interested. The Department of Home Economics offers studies arranged especially for the Short Course for Women. Students may select one or any number of these subjects. In addition all the studies in the Two Year Winter Course in Agriculture are open to women students. The courses in farm dairying, poultry raising, fruit growing and landscape gardening are especially recommended. It is expected that women students will choose part of their studies in Home Economics and part in Agriculture.

WHO MAY ATTEND

Any woman over sixteen years of age may attend. Older women who have had the care and responsibility of managing a



STUDENTS IN THE SHORT COURSE FOR WOMEN

Twenty-one students from thirteen Missouri counties took the work of the Short Course for Women in 1913.

house will find much that will interest them and on account of their experience will be able to derive even greater benefit from the course than girls who are less experienced. It is desirable that all students should have at least a common school education, but an earnest and sincere purpose is considered above other prerequisites. There are no entrance examinations.

STATEMENT OF STUDIES

Food Work. A study of what to eat, how much to eat and how it should be prepared. This course aims to make the student independent of the recipe by teaching general combining proportions and the principles underlying various combinations. Special attention is paid to the composition of the foods studied to give a general knowledge of what we should eat, and an idea of the comparative value of the different food stuffs.

Planning and Preparation of Meals. This course will consider the planning of a well-balanced meal and its systematic preparation. Its purpose is to give practice in home cooking. It will include

the study of the principles which underlie the daily food requirement and its proper division among the meals of the day. These meals will be planned at various costs, prepared and served. This course must be preceded or accompanied by the elementary food course.

Hygiene and Sanitation. The effect of the air we breathe, the water we drink, and the house in which we live, upon our physical health. This course aims to bring out the close relation which exists between disease and such simple factors in our every day life as fresh air, proper care of the body, furnishing of the home so it does not harbor dust, etc. This is an age of preventive medicine. Let us learn how to keep well.

Sewing. Garment cutting and making from patterns which



BE YOUR OWN DRESSMAKER

Dressmaking is one of the subjects taught to the students in the Short Course for Women.

have been drafted and fitted. This course aims to make it possible for the student to plan her own underwear and simple dresses, then draft a pattern for or adjust a ready-made pattern, cut, fit, make, and finish garments. Enough of hand work is given to enable the student to finish neatly the garments made, and to keep all clothes in repair. The comparative cost of different grades of material and methods of making are considered.

Dressmaking. The fundamental principles of dressmaking will be presented in this course. It will include a consideration of the drafting and adjusting of patterns, the planning, cutting and making of a woolen skirt and a lined dress. It aims to give that knowledge that is requisite for the home dress-maker. Some time will be spent in the discussion of the choice of materials and the application of design to dress.

Millinery. This course aims to teach the young women how to make, trim and retrim their own hats. It will include the designing and drafting of patterns for hats; construction of frames of buckram and wire; covering and finishing with velvets, nets and straws; making and placing of trimming. All of these will be applied in the making of hats from original designs.

Laundry Work. The application of science to practical laundrying such as may be worked out by the study of blueings, starches and soaps, with the effects of each upon the different fabrics. A comparative study of the different brands of the above mentioned laundry necessities will be made and their relative values for the different purposes estimated. Laundry equipment will be investigated with the idea of providing that which will enable the work to be done with the least expenditure of labor and money.

Home Care of the Sick. Considering first the care of the patient, the topics discussed will be: choice and preparation of the sick room, care of the patient, bathing of patient, making of patient's bed, and the importance of carrying out the doctor's orders implicitly. Next, as so many diseases are transmissible, the prevention of further contagion will be considered, isolation of patient, disinfection of anything removed from room, and care of room after the recovery of the patient. Special attention will be given to the care of the patient during certain more common diseases, as tuberculosis, typhoid and pneumonia, in which the nursing is such an important factor.

Advanced Dressmaking. (For those students who have had sewing and dressmaking or their equivalents.) In this course the students will make a woolen skirt and a dress with a fitted lining.

Preservation of Food. A study of the principles which underlie food preservation. This will be considered from the economic and

scientific standpoints. As much time as possible will be spent in practical work.

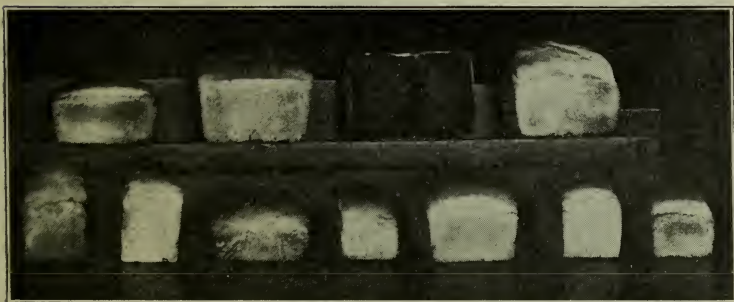
FEES AND EXPENSES

There is no charge for tuition but each student pays an incidental fee of five dollars. In the course in foods there is a laboratory fee of two dollars to cover the cost of the materials used. In the sewing course this fee is fifty cents.

Rooms may be secured in Columbia at prices ranging from eight to fourteen dollars per month. Where two persons occupy the same room each pays one-half the above sum. The price paid depends upon the size of the room and its conveniences. Board may be had at prices varying from \$3.50 to \$4.50 per week. Where it is necessary to have the cost even lower than that cited below, several women may co-operate in a plan for light housekeeping. Suitable rooms for such purposes are to be found in Columbia.

A conservative estimate of the expenses while in Columbia is:

Fees	\$ 8.50
Room—(with room-mate)	10.00
Board	30.00
Laundry	4.00
Total	<u>\$52.50</u>



THE PROOF OF THE TEACHING

A sample of the work done by students in the Short Course for Women.

WHAT TO BRING

The landladies furnish bed linen and covers, but each student is expected to bring her own towels. An extra blanket will usually be most acceptable. For the Food Course at least two plain white aprons will be needed. These should be plainly made, buttoning rather than tying at the belt, and should have bibs, either plain or with wide straps over the shoulders. For the sewing class a small sewing apron will be needed. The material for the suit of underwear and simple dress which will be made in the sewing class may be brought along or purchased here. A long sleeved gingham apron will be found most serviceable.

WHEN YOU GET HERE

If possible, all incoming Short Course students will be met by some of our Home Economics Club members who will show them where to go. In case there is no one to meet you, come directly to the Gordon Hotel Building where our Department is now located. It is only a short distance from either station and anyone can direct you to it. (See map on page 43.)



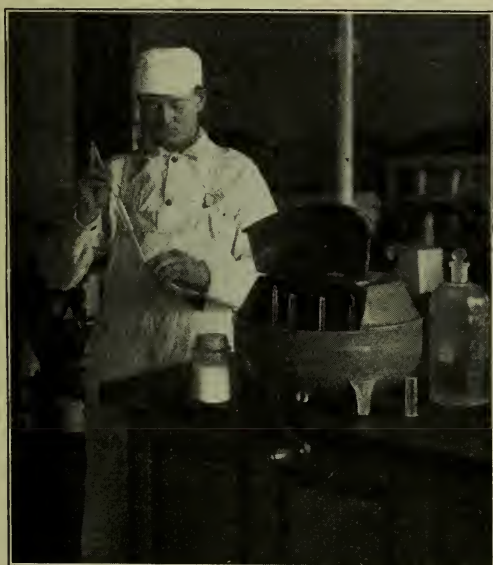
THE MODERN WAY

Short Course girls using the fireless cooker. Students in this course operate every modern household labor-saving device.

Students had better plan to reach Columbia either on Saturday, November 1, or on Monday, November 3. The latter date is advised. The offices of the University are not open on Sunday and students who are not familiar with the city may have some difficulty in locating desirable and convenient rooming and boarding places.

SHORT COURSE IN DAIRYING.

Instruction in creamery work has been given each year since the Dairy Department was established in 1901. The growing interest in this industry in Missouri makes it advisable to increase the time devoted to this subject and to add instruction in ice cream making.



OPERATING THE BABCOCK TEST

Dairy students learn to operate all modern dairy devices.

The Short Course in Dairying is offered for the benefit of those who wish to fit themselves for creamery work or to operate large private dairies. It covers seven weeks' time beginning January 5, 1914. It ends February 21. The laboratory fee for this course is \$5.00.

SCHEDULE OF STUDIES

	Lecture	Laboratory
Elements of Dairying	14	..
Milk Production	21	..
Testing Milk, Cream, Butter	5	15
Dairy Bacteriology	10	..
Creamery Buttermaking	10	45
Ice Cream Making	10	10

A description in detail of what is given under the titles of "Elements of Dairying" and "Milk Production" is found on pages 15-16. These lectures are taken with the students of the Two Year Winter Course in Agriculture.

STATEMENT OF STUDIES

Testing. Instruction in this subject will include the sampling and testing of milk and cream by the Babcock method. Various methods of taking samples will be tried and full instruction given as to the proper methods of making accurate tests for butterfat in these products. Practice in using tests for finding the amount of water in butter is also included.

Dairy Bacteriology. This subject will be given by means of lectures and demonstrations. The object is to teach the student the principles upon which the proper handling of milk, cream, and other dairy products is based. Special attention is given to the means by which milk becomes contaminated in the barn and how it should be handled to keep out impurities. The ripening of cream, the making of starters, and the study of the cause of variation in the flavor of butter is part of the instruction given in this course.

Creamery Buttermaking. The object in giving this instruction is to make the students familiar with the proper methods to be followed in buttermaking as practiced under factory conditions. Lecturers will give instruction and directions as to how the work should be done and the student will follow these directions with practical work in receiving, sampling and testing cream, pasteurizing, ripening, churning, working, and preparing butter for market.

Ice Cream Making. This subject is becoming of more importance each year and is being developed along with creamery buttermaking in many cases. Facilities are at hand to give good instruction along this line. Ice cream is made regularly and supplied to the leading retail store in the city. The lectures explain the principles and proper methods to be followed in making the best product and the student has opportunity by actual experience to learn how the work is done. Various experiments are made to illustrate the results of proper and improper methods.

SPECIAL POULTRY COURSE.

The unusual interest in poultry raising brought about by the rise in price of other foodstuffs has increased the demand for poultry instruction. To meet this demand the College of Agriculture of the University of Missouri has established a Special Poultry Course. The course is for busy people. It lasts seven weeks, beginning Monday, January 5, 1914, and ending Saturday, February 21. To acquaint the student with the problems of the poultry man, to teach him how to raise chickens more efficiently, to make him realize the chances of failure and also the opportunities for success,—these are some of the things the Special Poultry Course aims to accomplish.

The work is designed especially for the busy man who cannot spend more than seven weeks in fitting himself to be a poultry specialist, or to operate a small poultry plant with the same exactness that a poultry specialist would demand. The course covers the same field as that pursued by regular students, but takes up only the more practical aspects of the work. It deals with the fundamental things. It presents in a plain sensible manner the principles of poultry culture and acquaints the student with the practices of poultry raising.

FACILITIES FOR INSTRUCTION

The equipment of the Poultry Department is complete and modern. The Poultry Building is a stone structure 30x60 and has three class rooms besides an incubator cellar, having a dozen types of incubators and a capacity for 2500 eggs. The poultry plant covers five acres, has a housing capacity for 700 mature birds, and brooding capacity for 2000 chicks. The buildings have a total of 400 running feet and consist of twenty-five pens for instructional work. The stock consists of a dozen varieties, thus affording the student excellent opportunities to learn the points of the different breeds.

STATEMENT OF STUDIES

3bw. **Poultry Management.** A lecture course covering the entire field, housing, yarding, breeds and breeding, fattening, killing, dressing, marketing, feeding for egg production, diseases, incubating, brooding, and general summer care. Lecture daily.

4bw. **Poultry Management, Laboratory.** Laboratory work daily covering the same ground as 3bw but consisting of actual work, such as drawing and criticizing plans, judging chickens for fancy and utility purposes, grading eggs, killing and dressing fowls, making

and applying louse powder, mating pens, studying incubators, brooders, etc.

5bw. Poultry Practice. A practice course in which the student feeds and cares for laying hens, operates incubators, brooders, etc., and learns the art of poultry raising by doing the thing itself.

In addition to the above, regular students in the Special Poultry Course will elect Orchardring and Small Fruits (p....) and one other elective in the Two Year Winter Course in Agriculture.

AGRICULTURAL LIBRARY

The Agricultural Library contains 10,000 books relating to all phases of farming. Here, too, may be found current files of all prominent American farm papers, experiment station bulletins, reports of the national Department of Agriculture, and of various agricultural societies of Missouri and other states. The library is open to all Two Year Winter and other Short Course students at all times and affords a splendid opportunity to become familiar with the choicest farm literature.



A SHORT COURSE CLASS IN MEAT CUTTING

Home butchering, cutting and curing of meats is one of the new studies which is proving very popular with all students in the Two-Year Winter Course.

FOUR YEAR CURRICULA IN AGRICULTURE.

Students who have had the equivalent of a four year high school training are advised to enter one of the regular four year curricula in Agriculture or the curriculum in Forestry, rather than the Short Courses. The opportunities for graduates of the longer courses are unlimited. The College has not been able to supply the demand for farm managers, teachers in agricultural schools, investigators in experimental stations, scientific aids in the United States Department of Agriculture, foresters, farmers' institute lecturers, and agricultural journalists.

One of the recognized functions of the College of Agriculture in its long courses is to train for actual farm work. The University of Missouri believes that any one who is to manage a good Missouri farm is entitled to the same high grade of instruction as is the lawyer, the physician, the preacher, or the teacher. Every important phase of farming is given careful attention—stock raising, fruit growing, grain farming, dairying, poultry raising, drainage, crop rotation, and business management.

Fifteen units, the equivalent of a four-year high school course, are required for admission to the regular curricula in Agriculture and Forestry. A unit is the equivalent of a high school subject pursued five periods a week for at least thirty-six weeks.



SHORT COURSE MEN JUDGING HOGS

Practically all the leading breeds of livestock are kept at the College for class-room work.

Applicants for admission who are deficient in a small portion of the requirements may be admitted conditionally at the discretion of the Dean of the University Faculty.

For further information in reference to admission, write to the Dean of the University Faculty, Columbia, Missouri.

SPECIAL STUDENTS

Mature men and women may be admitted to the College of Agriculture for special study in such subjects as they are prepared to pursue with profit to themselves. Such students must be at least twenty-one years of age. Special students are not candidates for degrees and cannot become such until they have fulfilled all requirements for admission. Entrance cards for special students are issued by the Dean of the University Faculty to whom applications for admission should be sent.

FEES AND EXPENSES

Tuition in the College of Agriculture is free. An incidental and library fee of \$10.00 for each semester is required of all Missouri students. The fee from students from outside the state is \$10.00 a semester in addition to the library and incidental fee. In laboratory courses a deposit is required to pay for the material used and damage to scientific apparatus.

Paying One's Way Through the University. It is variously estimated that from twenty to thirty per cent of the students in the College of Agriculture are paying all or a considerable portion of their expenses by working while attending the University. Such students work for the various departments of the College in caring for the live stock, assisting in the Dairy Department, working for the Experiment Station, helping in the preparation of hog cholera serum and giving assistance in pruning, spraying and planting on the horticultural grounds. Two hundred and thirty-one students were given a greater or less amount of work in these various departments during the past year.

Students also find employment in Columbia caring for furnaces, waiting on tables, clerking and numerous other ways.

Degrees. The degree of Bachelor of Science in Agriculture is conferred upon all students completing the regular agricultural course.

The degree of Bachelor of Science in Forestry is conferred upon all students completing four years of the curriculum in Forestry. The degree of Master of Forestry is conferred upon all students completing the five-year curriculum in Forestry.

Master of Science in Agriculture is awarded for one year's graduate study in the technical subjects of the College and the submission of a satisfactory thesis.

The degree of Doctor of Philosophy is conferred upon graduate students who have devoted not less than three years of advanced study to some special branch and have attained exceptional proficiency in original research.

FARMERS' SHORT COURSE

During the second week in January each year the College offers a short course in Agriculture for farmers in connection with the Farmers' Week Program arranged in cooperation with the State Board of Agriculture. In this course special lectures and demonstrations in soils and farm crops, animal husbandry, dairying, horticulture and poultry farming are given in the class rooms, laboratories and live stock judging pavilion belonging to the University. Farmers to the number of 1581 were enrolled for this course in 1913. Among the farmers attending there were representatives from 18 states. This course will be given again January 12-16, 1914.

STATE ACTIVITIES OF THE COLLEGE

Teaching Agriculture Out in the State. Last year men from the College of Agriculture gave instruction in farm methods to nearly 110,000 Missouri farmers. This was accomplished through the medium of special agricultural trains, Branch Short Courses, Farmers' Institutes and special lectures.

Branch Short Courses were held at the following places: Bowling Green, Sedalia, Kahoka, Eagleville, Maywood, Diamond, Maryville, Elsberry, Trenton, O'Fallon, and Callao. The total attendance at these courses was 862. At each course two or more men from the College of Agriculture gave instruction in Animal Husbandry, Farm Crops and Soils, Orchardng, Dairying and Poultry Raising. Each of these courses was five days in length.

Helping the Rural Schools. The Professor of Rural Education addressed last year more than 31,000 people on the subject of agriculture in the rural schools and on general rural school betterment. Personal visits were made to sixty schools. More than 3,000 bulletins and circulars on the subject of agriculture were placed directly in the hands of teachers and students. Approximately 2,000 teachers were addressed on the subject of re-organizing the course of study for rural schools with agriculture as the central subject.

Summer School in Agriculture. In the regular summer school special courses in agriculture are offered for the benefit of teachers who wish to teach the subject in the rural and high schools of the

State. More than 150 teachers were enrolled for this work in the summer session of 1912.

Short Course for Farmers. Each year the College of Agriculture offers a special short course for farmers. This course is given early in January and is commonly spoken of as Farmers' Week. Distinct courses are offered in Soils and Farm Crops, Live Stock Farming, Poultry Raising, Dairying, and Horticulture. In 1913 there were 1581 farmers enrolled in this course. The work continues for one week.

Demonstration Farms. Under the direction of the Department of Farm Management a number of demonstration farms have been established in various sections of Missouri. These farms are conducted according to plans furnished by the College of Agriculture. In order to spread the influence of these successful methods, meetings are held at intervals at which farmers from the surrounding country meet and discuss methods and results.

County Farm Advisers. Nine Missouri counties have entered into a plan of cooperation with the College of Agriculture and the United States Department of Agriculture whereby a farm adviser is permanently located in each of these counties. The work of the farm adviser is to assist the farmers of his county to apply to their own farms the practical methods which have been worked out by the investigations of the Experiment Station. The following counties have farm advisers: Buchanan, Jackson, Pettis, Marion, Cape Girardeau, Johnson, Dade, Audrain, Scott.

Judging Livestock at County Fairs. The Agricultural College supplied fifty-three county fairs in forty-two counties with expert judges of livestock in 1912. These judges were trained for the work by the Animal Husbandry Department. It required one hundred and three days and the service of fourteen men to supply the demand for judges. The total number of animals passed upon for the award of prizes was 7,026. There were 313,600 people attending these fairs. By this means the College is using the most efficient and practical method of helping stockmen and farmers to proficiency in the selection and development of profitable types of animals.

Judging Corn Shows. The Department of Agronomy supplied judges of grain at fifty-six local shows in fifty-six counties during 1912-13. This work required a total of 636 days and the services of nine men. The number of samples of grain passed upon was 1934. These shows were attended by 52,045 people.

THE EXPERIMENT STATION.

The Experiment Station is a Division of the College of Agriculture. Its function is original investigation for the benefit of agriculture.

The establishment of the Experiment Station as a division of the College of Agriculture has had a profound influence upon the instructional activities of the institution. It has emphasized the fundamental importance of original research and the investigations in progress have furnished the best sort of material for demonstrations. Advanced students are utilized as much as possible for assisting in experimental work and are thus enabled to acquire valuable practical experience. Some of the results of the work of the Experiment Station are mentioned below:

RESULTS OF WORK OF THE EXPERIMENT STATION

Co-operation With Missouri Farmers. The Agricultural Experiment Station is conducting co-operative work with 204 farmers. Practically every county in the State is represented in this list of co-operators. The co-operative work includes experiments in the growing of spring and winter oats, potatoes, corn and barley, together with work in farm management, orchard spraying and fertilization, and the use of pure bred sires in dairy herds. These experiments have demonstrated the best methods of growing special crops in special localities of the State, and have also shown the varieties of corn and small grains best adapted to different portions of the State. The horticultural investigations have proven the profitability of fertilizing and spraying fruit trees and bushes. By the use of pure bred sires, dairy farm co-operators have in some cases increased their profits more than twenty per cent.

Outlying Experiment Fields. Sixteen Outlying Experiment Fields have been established on characteristic soil areas of the State. One these fields there are fourteen soil experiments, five experiments with field crops and four drainage experiments. Each of these investigations has for its definite aim the supplying of local information which cannot be worked out at Columbia, where the Agricultural College is located, because of climatic and soil differences.

On the soil experiment field at Lamar in Southwest Missouri it has been shown that corn may be increased from twenty bushels to forty-five bushels an acre. In the same locality wheat has been increased twelve bushels an acre.

Good soil management on one of the Station's outlying experiment fields located at Victoria increased the clover yield from one-

half ton to two tons an acre. The increased net profit was \$6.00 an acre.

In Christian County corn yields have been increased sixteen and a half bushels an acre and clover one ton on each acre by the application of results secured by the Missouri Experiment Station on its Billings field.

Soil experiments on the Station's field at Monroe City in Northeast Missouri have increased the yield of wheat by sixteen bushels an acre with a corresponding increase in the net profit.

Seed Testing Laboratory. The College of Agriculture in co-operation with the United States Department of Agriculture, maintains at Columbia a free seed testing laboratory. Any farmer or seedsman in the State may send samples of seed to the College and have them tested without cost. Tests are made for adulteration, mixture with noxious weeds and foreign matter, and for vitality. In 1912 more than 1500 samples were tested.

Inspecting Commercial Fertilizers. The Agricultural Experiment Station is authorized under the laws of Missouri to inspect fertilizers sold to Missouri farmers. All fertilizers must be registered with the Experiment Station and a certified statement placed on file giving the guaranteed amount of plant food present in any particular brand. The college inspectors collect samples which are analyzed to determine whether fertilizers are true to claims. Several thousand analyses are made each year in carrying on this work.

Preventing Hog Cholera. More than 160,000 doses of hog cholera serum were distributed by the College of Agriculture last year. This serum was used in 2,313 herds. Men from the College applied the serum in 917 herds. Eighty-five per cent of the hogs treated were saved, besides checking the spread of the disease to a large extent. This represents a saving to Missouri farmers of a million or more dollars.

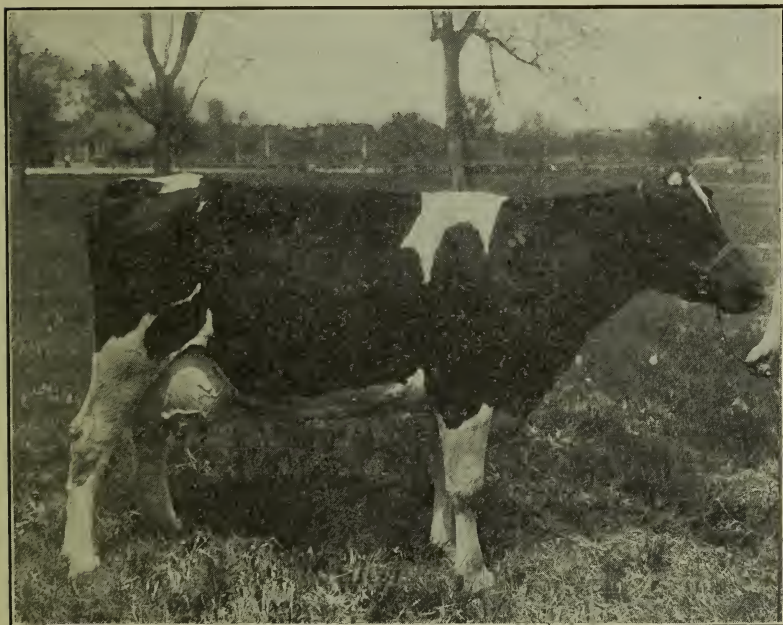
Results of Soil Survey. As a result of the investigations relating to the soil survey of Missouri, there has already been accomplished a general preliminary soil survey of the whole State. A more careful survey of the Ozark region and of Northeast Missouri has been made. A thorough and detailed agricultural and soil survey of the following counties in Missouri has been completed: Atchison, Audrain, Barton, Bates, Cape Girardeau, Carroll, Cass, Cedar, Cooper, Crawford, Franklin, Howell, Jackson, Laclede, Lincoln, Macon, Marion, Miller, Pemiscot, Pike, Platte, Putnam, Saline, Scotland, Shelby, St. Charles, St. Louis, Stoddard, Sullivan, and Webster.

Results from Co-operative Experiments. The average yield of corn in Missouri in 1909 was 27.4 bushels an acre. The average yield

of corn on the farms of twenty-five farmers, co-operating with the Agricultural Experiment Station in the same year, was 48 bushels an acre. Each of these co-operators has become a demonstrator of the successful methods of corn growing which have been recommended by the Experiment Station.

Boys' Corn Growing Contest. In order to encourage boys under twenty years of age in the growing of improved varieties of corn according to improved methods of culture there has been established a Missouri Boys' Corn Growing Contest. Last year 3,000 boys were enrolled. Approximately 2,500 acres of corn were involved in this state-wide contest.

General Correspondence. One of the chief means by which the College of Agriculture is of benefit to Missouri farmers is through the medium of correspondence. Last year more than 63,000 letters were received and answered by members of the Experiment Station



ONE OF THE BEST HOLSTEIN COWS IN MISSOURI

Carlotta Pontiac, shown in the above picture was bred by the Missouri College of Agriculture. Last year she produced 23,593 lbs. of milk. At current market prices for butter fat her product sold for nearly \$250.00. It cost \$90.00 to feed her. She is but one of the many object lessons Short Course students meet at Columbia.

staff. This is an increase of 21.5 per cent over the preceding year.

Travelling Dairy Instructor. The College of Agriculture is actively assisting in the development of the dairy industry of the State. In conducting this phase of its work a travelling dairy instructor is maintained, whose whole time is devoted to organizing and instructing dairy associations and individual farmers.

Free Circulars and Bulletins. During the year ending June 30, 1912, twenty-one new publications and three re-prints were issued. The total number of pages represented by these publications is 2,888,500. The following are now available and will be sent free to farmers of Missouri who will write for them addressing the Agricultural Experiment Station, Columbia, Missouri:

Bulletin 55, Pruning Peach Trees.

Bulletin 84, Soil Experiments on the Prairie Silt Loam of Southwest Missouri.

Bulletin 88, Soil Management in the Ozark Region.

Bulletin 103, The Silo for Missouri Farmers.

Bulletin 104, The Evergreen Bagworm.

Bulletin 106, Co-operative Experiments with Alfalfa.

Bulletin 109, Inspection of Commercial Fertilizers.

Bulletin 110, Forage Crop Rotations for Pork Production.

Bulletin 111, Report of Director.

Bulletin 112, Corn Silage for Fattening Two-Year-Old Steers.

Bulletin 113, Commercial Fertilizers for Strawberries.

Circular 37, Variation in Cream Tests.

Circular 38, Principles of Maintaining Soil Fertility.

Circular 40, The Seeding of Alfalfa.

Circular 41, Directions for Testing Milk on the Farm.

Circular 42, The Seeding of Clovers and Grasses.

Circular 44, Feeding for Milk Production.

Circular 46, Factors Influencing the Yield of Oats.

Circular 47, Raising Calves on Skim Milk.

Circular 48, The Plastered or Gurler Silo.

Circular 50, Selection of Corn for Seed and Show.

Circular 51, How to Prolong the Life of Fence Posts.

Circular 53, The Seeding of Cowpeas.

Circular 54, Co-operative Experiments of the Department of Agronomy.

Circular 56, Some Factors in Wheat Production.

Circular 57, Keeping Records of Dairy Cows.

Circular 61, Docking and Castrating Lambs.

Circular 62, The Chinch Bug and its Control.

Circular 64, Directions for Testing Cream.

Circular 65, Benefits from Use of Pure Bred Ram.

GENERAL STATEMENT

The fundamental aim of the University of Missouri is the development of the highest and most efficient type of citizen. For the purpose of attaining its aim, the University furnishes ample facilities for liberal education and for thorough professional training. The University is a part of the public educational system of the State.

In the course of seventy-four years of development, new divisions of instruction have been organized in response to the needs of vocations followed by citizens of the State.

ORGANIZATION

The work of the University is now carried on in the following Colleges and Schools:

- College of Arts and Science
- College of Agriculture
- School of Education
- School of Law
- School of Journalism
- School of Medicine
- School of Engineering
- School of Mines and Metallurgy
- Graduate School
- Extension Division

All of these divisions are at Columbia with the exception of the School of Mines and Metallurgy, which is located at Rolla. In addition, emphasis is given particular lines of work by the establishment of minor divisions, the chief of which are the Agricultural Experiment Station, the Engineering Experiment Station, and the Military School.

LOCATION

The University of Missouri is located at Columbia, a town situated half way between St. Louis and Kansas City near the center of the State. It is reached by the Wabash and the Missouri, Kansas and Texas Railways. Columbia is a progressive and prosperous town having doubled its population in the last few years. It has nearly twenty miles of paved streets.

Columbia may be characterized as a town of schools, homes and churches, with enough of industrialism to make it efficient. It offers the conveniences of a larger city without the counter attractions. The student is a predominant factor in Columbia.

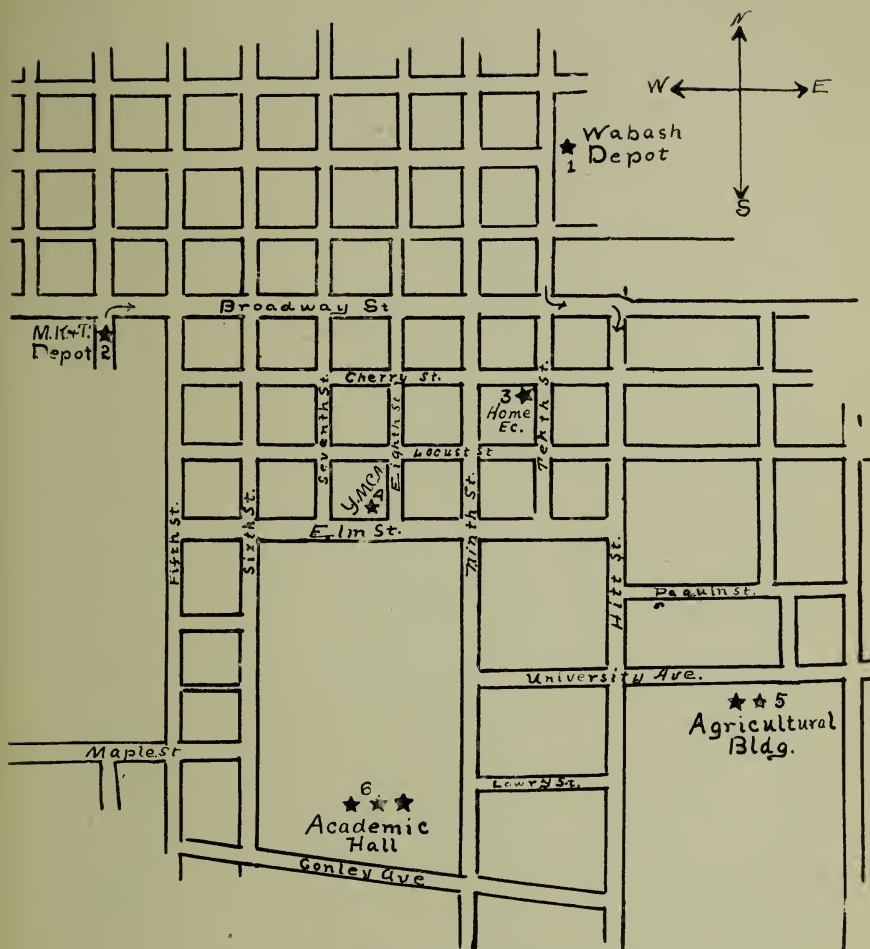
EQUIPMENT

The University grounds cover more than eight hundred acres. The main divisions are in the Quadrangle, the Horticultural Grounds, the Physical Education Grounds, and the Agricultural College Farm.

The following University buildings are located at Columbia: Academic Hall; Laws Observatory; separate buildings for Chemistry, Agricultural Chemistry, Physics, Zoology and Geology, Law, Engineering, Manual Arts; three power houses; Medical Laboratory Building; Parker Memorial Hospital including the Busch Clinic; Agricultural Building; Horticultural Building; Green Houses; Live Stock Judging, Dairy, Farm Machinery, and Veterinary Buildings, and the Agricultural College Farm Barns and Buildings; Switzer Hall, for the School of Journalism; Benton and Lathrop Halls, dormitories for men; Read Hall, the dormitory for women; Rothwell Gymnasium; the houses for the President of the University and the Dean of the College of Agriculture; the High School, and the Elementary School Buildings used for practice schools in the School of Education.



AT THE FORGE



A GUIDE FOR SHORT COURSE STUDENTS

1. Wabash Depot. 2. M. K. & T. Depot.
3. Home Economics Building, where students in the Short Course for Women will register.
4. Young Men's Christian Association Building, where Short Course students may obtain information in regard to rooms, board and employment.
5. Agricultural Building, where students register for the Two-Year Winter Course, Short Course in Dairying and Special Poultry Course.
6. Academic Hall, where all Short Course students pay their incidental fee of \$5 per term and receive their study cards.

THE
UNIVERSITY OF MISSOURI
BULLETIN
GENERAL SERIES

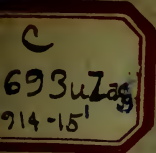
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Number 2, February	College of Arts and Science
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Number 5, May	Catalogue
Number 6, June	School of Medicine
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Number 8, August	School of Journalism
Number 9, September	School of Engineering
Number 10, October	College of Agriculture
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GENERAL SERIES

1914 No. 8

ANNOUNCEMENT OF THE COLLEGE OF AGRICULTURE

(Regular Session)

1914-1915



UNIVERSITY OF MISSOURI
COLUMBIA, MISSOURI
June, 1914

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MISSOURI'S SUCCESSFUL INTERCOLLEGIATE JUDGES



THE FRUIT JUDGING TEAM
Matthews, Harrington, Reese



THE LIVE STOCK JUDGING TEAM
Arnold, Royce, Caldwell, Prof. Trowbridge (Coach)
*Fuqua, Prof. Hackedorn (Coach), Gillespie, *Reed, Dickerson



THE DAIRY JUDGING TEAM
Wing, Rhea, Howell

*Alternates.

OPPORTUNITIES IN AGRICULTURE

There has never been a time when the call for men trained in scientific agriculture was so persistent as at the present time. Positions become available faster than men can be trained to fill them. The opportunities for good men adequately trained are increasing steadily in spite of the fact that an increasing number of graduates are annually sent out from agricultural colleges. The problem of transforming the agricultural industry into modern ways is a stupendous one. It requires the best thought, the greatest energy and the truest courage that the young men of the farm and the town can bring to this high calling. From every corner of the nation comes the persistent call for men who know agriculture "from the ground up." The field is as wide as the continent. The opportunity is:

I. **On the Farm.**—The farm is the fundamental thing in agriculture. The College of Agriculture of the University of Missouri believes that the man who desires to spend his life on a Missouri farm should have the same opportunity for training in his profession that the doctor, the lawyer, the teacher or the preacher receives. The standard of production must be raised. This is no more important, however, than the need of putting better business methods into farm procedure and of completely making over the social fabric of the country so that the farm may be the best place in the world in which to live and enjoy life. A sensible training in agriculture makes this possible. This has been proven by a large number of the graduates of this college. The owners of large estates are calling for competent farm managers. Here is a great field for trained horticulturists, dairymen, live stock, and crop experts.

II. **In College Work.**—With the world-wide awakening to the need of better farm methods, has come a correspondingly rapid growth and development of agricultural colleges everywhere. This has opened many teaching positions to those who know agriculture and know how to teach it to college students. At the same time college teachers are being steadily drawn into other fields leaving vacancies to be filled by men who have more recently come up from the student ranks. One of the serious problems confronting our agricultural colleges is to find men equipped by training and natural inclination to fill the teaching positions which are always waiting. More than 4000 teachers are employed by the agricultural colleges of the United States.

III. **In Secondary Schools.**—High schools are introducing agriculture into their curricula as fast as teachers can be found to handle

the work. Some states have gone still farther and have established agricultural high schools. There are now several thousand schools below college rank which are giving instruction in agriculture. Agricultural college graduates will be demanded for all these positions where the highest type of efficiency is required.

IV. In Experiment Station Work.—Of even greater importance than the teaching of scientific agriculture in colleges and secondary schools is the investigation of farm problems conducted by the various agricultural experiment stations. These problems are concerned with improvement of the standard farm crops and the breeding of new varieties of grains and forage plants; the control of plant and animal diseases; the chemical analysis of soils and fertilizers; the economical feeding of live stock for meat, milk, and labor; the control of injurious insect pests; the study of chemical and bacterial agencies in the soil; the working out of practical methods of orchard, farm, and garden management. The field for agricultural research is unlimited and the demand for such investigations increases with the years. More than 1200 persons are now engaged in experiment station work in the United States.

V. In the Industrial and Commercial World.—The railroads and transportation companies employ a large and increasing number of trained agricultural men each year. The fertilizer companies are looking to the agricultural colleges to supply them with men who understand the whole problem of increasing and maintaining soil fertility. They are building for permanency. Packers, grain dealers, milling concerns, manufacturers of farm machinery and motors, and real estate agencies are all employing men trained in agriculture. More college graduates are needed to supply this demand.

VI. The Field of Agricultural Journalism.—The number of agricultural college graduates who have taken editorial positions with farm papers in the past five years has probably been greater than in the twenty years preceding. This field is limited but very desirable for those men who can qualify for the work. It is a growing field; more men rather than less will be wanted as the years go by.

VII. In Extension Work.—The big problem of the agricultural colleges and experiment stations today is the problem of how to carry the information in their possession to the farmers of the nation and apply it directly to the farm. The farmers themselves and all persons interested in the farm are demanding that the agricultural colleges increase their extension service. It will take a good sized army of men to meet the needs of the extension service during the next decade. These men must largely be college graduates. They must know the "how" of farming but they must also know the "why."

VIII. In County Work.—There are 114 counties in Missouri. Thirteen of these have already asked for and been provided with county

agricultural agents. In Missouri these men are known as "county farm advisers." Forty other counties in the state are considering the hiring of farm advisers. Other states are doing even more than Missouri along this line of effective extension work. If the development of the past two years may be taken as an indication of the future, the country will call for thousands of men for county work in the next ten years. Our agricultural colleges will be expected to supply this call.

IX. In the Service of the United States Department of Agriculture.—The United States Department of Agriculture holds to the agricultural interests of the entire nation a relation similar to that which the Missouri College of Agriculture holds to the farming interests of Missouri. Altogether there are nearly 14,000 persons in the service of the national department. Under its supervision comes the extensive meat inspection service, food inspection, and various other forms of government inspection; the weather service with branches and substations in every state; an extensive publication service; the administration of government agricultural and forest lands; an extension service covering every phase of agricultural activity whether concerned with the actual processes of farming, the farm home, social conditions on the farm, or the education of the farm boy and girl through the medium of boys' and girls' clubs. A large proportion of these positions are available only to graduates of agricultural colleges.

X. In Forestry Work.—With the rapid diminishing of the timber supply, the nation as a whole and several of the states individually have awakened to the need of a systematic forestry service in order to replenish our forest areas and conserve the timber supply which still remains. This has called into service a large body of men trained along agricultural and forestry lines. The demand for men has led to the establishment of forestry schools and this in turn has created a demand for teachers of forestry. The lumbering industry is also drawing heavily upon college-trained foresters. Graduates of the Missouri College of Agriculture have special opportunities to enter this field on account of the nearness to the great lumbering region of the southwest. The field is a growing one and the demand for trained men will continue to increase.

XI. Landscape Gardeners.—In the care of country estates, city parks, driveways, and municipal improvement projects, men are needed who understand soils, fertilizers and the general principles of plant growth and development, and who combine with this fundamental knowledge, a thorough acquaintance with trees, shrubs, and flowering plants as well as a knowledge of the principles underlying landscape gardening. The field is a limited one but offers a fine opportunity to men whose natural inclination tends in this direction.

THE MISSOURI COLLEGE OF AGRICULTURE

To the best trained men will come the choicest of the opportunities enumerated above. The best training can be afforded only where conditions are most favorable for effective teaching. Last year the College of Agriculture of the University of Missouri won:

First place together with two \$400 scholarships and three loving cups in the National Dairy Judging Contest at Chicago, sixteen institutions competing;

First place and loving cup in the National Fruit Judging Contest at Washington, D. C., eight institutions competing;

Second place in the International Live Stock Judging Contest at Chicago, twelve institutions competing.

This is the result of efficient training. It demonstrates what students of the Missouri College of Agriculture can do in competition with the leading agricultural colleges of America and Canada. This training is made possible by:

I. A COMPLETE AND MODERN EQUIPMENT

A. BUILDINGS

Agricultural Building: A two-story stone structure with a high basement and an auditorium seating 500 persons. More than 1,000 students may be accommodated at one time in class rooms and laboratories. The building includes: offices of the dean and director; the State Board of Agriculture, including the state veterinarian; the seed testing laboratory, the agricultural library, the departments of soils, farm crops, animal husbandry, farm management, forestry, rural education, and rural economics.

Horticultural Building: A stone building, two stories and a well-lighted basement with plant house and insectary, class rooms, laboratories, offices and preparation rooms for horticulture and entomology.

Dairy Building: A stone building, two stories with cheese-curing room in basement, rooms for creamery manufactures, cheese making, dairy work, milk-testing laboratory, offices, and class rooms.

Schweitzer Hall: A new two-story stone building for agricultural chemistry, 170 feet long and 65 feet wide, with well-lighted basement. Half of the first floor is occupied by the offices and general chemical laboratories of the Agricultural Experiment Station. The basement contains a thoroughly equipped nutrition laboratory with demonstration room and large refrigerating rooms offering exceptional facilities for meat studies, including dressing and curing. The balance of the building is occupied mainly by student laboratories, lecture and class rooms.



SOILS STUDENTS AT WORK IN THE FIELD

Soils work at the Missouri College of Agriculture is given point by requiring all students to make special studies of typical soil areas on the University Farm.

Barns, Shelters, and Live Stock Judging Pavilion: The department of animal husbandry is equipped with a modern cattle and horse barn, providing accommodations for 100 cattle and horses. The first story is of stone with granitoid floor. In connection is a 250-ton stone silo. There are cattle feeding sheds, divided into fifteen lots for experimental feeding and other investigational work; a modern hog barn with concrete floors, iron pen divisions, and dipping tanks; and a barn for the leading pure breeds of sheep. A new live stock judging pavilion 90x160 with tan bark arena and seating capacity of 2000 will be completed before the opening of the 1914-15 session.

Dairy Barn: A new dairy barn, modern in every detail and having a capacity for seventy-five dairy cows was completed in 1911.

Veterinary Building: The veterinary department is housed in a new three-story building devoted exclusively to investigation and instruction in veterinary science. The building contains laboratories for anatomy, physiology, investigations in contagious and infectious diseases, the preparation of hog cholera serum, and operating rooms for clinics.

A separate building and infection pens enabled the department to produce more than 200,000 doses of hog cholera serum in 1913.

Poultry Building: A two-story stone building, including general office, incubator room equipped with various types of incubators, sales room, class rooms, and laboratory.

The poultry department has one fifteen-pen laying and breeding house, a feed house with killing pen in the basement, two farm poultry houses, one experimental breeding house, and ten portable colony houses. Several hundred fowls, representing the popular varieties, are kept for instructional and experimental purposes.

B. LABORATORIES

Farm Machinery: A commodious stone building equipped with the latest types of tillage machines, self-binders, mowers, corn planters, hay loaders, manure spreaders, and gasoline engines.

Botany: Laboratories for physiological and structural botany, and culture rooms for physiological, mycological, and bacteriological work are in the new Biology Building. They are equipped with compound and dissecting microscopes, microtomes, steam and steam pressure sterilizers, incubators, balances, precision apparatus, and glassware. The herbarium amply illustrates the local flora.

Agricultural Chemistry: The completion of Schweitzer Hall, the new agricultural chemistry building, furnishes exceptional class room and laboratory facilities for undergraduate instruction. The new building has two large student laboratories, a nitrogen laboratory, two balance rooms and an ether extraction room exclusively for student laboratory work. The total capacity of the laboratories is 260 students each semester. A number of research rooms are provided to facilitate the research work of the more advanced students, giving special opportunities for investigations of problems in animal nutrition, silos, fertilizers, foods, feed stuffs, including a critical study of the provisional and official methods of the Association of Official Agricultural Chemists.

Entomology: The laboratories and insectary located in the Horticultural Building are supplied with microscopes, dissecting instruments, microtomes, breeding cages, aquaria, spraying machines, insecticides and re-agents. The museum contains collections of several thousand species of the more injurious and beneficial insects, arranged to illustrate their habits of work and life history.

Horticulture: The horticultural laboratories occupy about 6,000 square feet of forcing-space under glass, a laboratory for the propagation of dormant plants, and storage room for cuttings, bulbs, stocks, and scions. The department also has laboratories for soil examinations and investigation of special horticultural problems regarding



READY FOR THE COOLERS

Students in the College of Agriculture are given an opportunity to kill, dress and cure meats of all kinds for home use.

plant growth. The out-of-door collection on the horticultural grounds comprises about one thousand varieties of fruits, ornamental shrubs and trees for a study of planting, pruning, cultivating, and spraying.

In addition, eighty acres in the loess soil formation adjacent to Columbia is being developed in orchards, vineyards, etc., of a size to demonstrate the best fruit growing methods on a commercial scale. It also comprises a large collection of young seedling tree fruits which are the result of extensive breeding experiments now going on in the department.

Farm Crops: The laboratories for instructional and investigational work include a large and well-equipped laboratory for the study and exhibition of the various types and most important varieties of farm crops, including material and equipment for the judging, grading, and handling of grains, a room for storing and fumigating class room material, a germinating room equipped with germinators, a seed house, a research laboratory, and a seed testing laboratory maintained in co-operation with the U. S. Department of Agriculture.

The department also maintains an economic plant garden in which are grown the various types and principal varieties of all farm crops, together with the most prominent wild related forms. This affords an excellent opportunity for the study of such crops in the field and material for a systematic study of botanical characters and relationships in the laboratory.

Dairy Husbandry: Facilities for instruction in dairy manufactures include creamery room, equipped with power separators, churns, pasteurizers, sterilizers, and butter printers; a cheese room provided with vats, cheese presses, and curing room; cream separators, milk testing apparatus, and churns; refrigerating plant and cold storage; a laboratory for instruction and investigation in dairy bacteriology.

From 500 to 1,000 pounds of butter are manufactured each week throughout the year.

Forestry: The forestry laboratory for the study of wood technology and dendrology is located in the Agricultural Building. The equipment includes a collection of the commercial woods of the country; cross and tangential sections of the trunks of trees of Missouri; an herbarium of tree species; exotic and native trees growing on the University campus; a forest nursery containing seed and transplant beds; and a tract of timber near the University for experimental planting and demonstration.

A permanent forest camp for the summer session of the course in forestry is established each summer on some portion of the University forest of 50,000 acres located in the Ozark region of southern Missouri. This camp is used for practical instruction in lumbering, mensuration, silviculture, and forest surveying.

Soils: The facilities for instructional and investigational work in soils include a large soils laboratory for the required course of instruction, balance rooms, storage rooms, and a special laboratory for advanced students. The equipment of these laboratories includes that necessary for work in soil physics and soil fertility. A plant house 30 by 65 feet is provided for special experiments by students and by those engaged in experiment station investigations. In addition, the various soil experiments in progress on the Agricultural Experiment Station field offer special opportunity for both instruction and investigation, while the results of the soil survey and of the various outlying soil experiment fields are used to good advantage in the instructional work.

C. LIVE STOCK EQUIPMENT

Dairy Herd: The dairy department maintains a herd of about seventy head of the Ayrshire, Jersey, Holstein, and dairy Shorthorn breeds. Complete milk and butter records are kept of each cow. The student is given instruction in the breeding, care, and management



A GROUP OF COLLEGE PRIZE BARROWS

An object lesson for students in right breeding, feeding and management of swine.

of dairy cattle. Several cows in this herd hold milk and butter records which rank them among the best specimens of dairy cattle ever produced.

Other Live Stock: The animal husbandry department is well equipped with most of the leading breeds of cattle, sheep, swine, and horses. Live stock judging instruction is facilitated by the use of pure bred and grade steers, fitted for fat stock shows. These steers have won many premiums at the leading live stock shows of the country.

The college maintains breeding herds of Hereford and Shorthorn and Angus cattle. In addition, it has representatives of the Galloway breed for use in teaching stock judging and studying breed type.

Poland China, Berkshire, Duroc Jersey, and Chester White breeds of swine are maintained.

Shropshire, Delaine, Merino, Hampshire, and Cotswold breeds of sheep are included in the college flock.

The horse equipment includes Percherons, saddle horses, and Morgans of the American carriage type.

In addition, the college purchases from time to time, grade cattle, hogs, and sheep for investigations in feeding.

D. LAND EQUIPMENT

Altogether there are 700 acres in the University farm, a large part of this is hilly blue grass pasture. There is enough cultivated land

to satisfy the requirements of instruction and students are given an opportunity to study in the field the effects of proper and improper soil management and crop rotation as well as to observe all the facts of plant growth and plant development which are necessary to a proper understanding of farm crop rotation. The horticultural grounds are adequate to teach the principles of orchard and garden management in every detail.

II. THE TEACHING STAFF

Forty-nine teachers give their time to the instruction of agricultural students in the strictly agricultural subjects. These men devote a portion of their time to the carrying on of experiments and to extension work among the farmers of the state. This combination of duties places them in a position to teach most effectively because they are in close contact with the farmers while at the same time they are helping to solve the farm problems. In addition to this corps of teachers, there are twenty-five teachers who give instruction to agricultural students in the fundamental sciences such as zoology, botany, chemistry, and physics, upon which sciences the practice of technical agriculture is founded.

III. THE COURSE OF STUDY

The fundamental idea in planning the course of study at the Missouri College of Agriculture is to train men to be farmers, teachers and investigators in the broadest sense of the term. The course is founded in the belief that to be a successful teacher of agriculture, a successful investigator of farm problems, a practical writer on farm subjects, or a useful adviser in farm practice, a man must first of all understand farming in its every detail. He must be taught to see the application of every scientific fact to the actual practice of farming; he must be taught to realize that the whole scheme of agricultural education centers about the soil and its products. This is the idea upon which the course in agriculture at Missouri is built.

The College of Agriculture of the University of Missouri is fortunate in being organized as a division of a University comprising a College of Arts and Science, a School of Education, a School of Engineering, a School of Mines and Metallurgy, a School of Law, a School of Journalism, a School of Medicine, and a School of Commerce. Coordinating with the work of the University, although independent from it, is the Missouri Bible College. So the student in agriculture, if he desires, may broaden his course by electing subjects from any of these other divisions of the University. His associations while at the college bring him in contact with men in other divisions whose pur-

poses and views of life are widely divergent. Because of these associations a graduate of the Missouri College of Agriculture leaves the University a broader man, a man with a better understanding of the world in which he is to live and of which he is to form an important part. Because of his breadth of view, and because of his studies outside the technical field of agriculture, he is better fitted for a higher citizenship and for a higher place in community life than is possible where opportunities are more restricted.

On account of the high rank which the College of Agriculture of the University of Missouri has succeeded in occupying among the agricultural colleges of this continent, graduates of other colleges who wish to continue their studies along certain lines of specialization come in increasing numbers to this institution. The faculty is gradually making plans to offer complete and adequate facilities for graduate study. That its efforts are successful is evidenced by the large number of students enrolled in the Graduate School who are carrying their work in agriculture.

IV. STUDENT ORGANIZATIONS

The Missouri College of Agriculture recognizes the fact that a part of each student's training should be the development of his powers of administration and self-government. It is a part of the training for good citizenship. In pursuance of this idea, student organizations have been encouraged and every student is urged to affiliate himself with some organization or some movement in which



REDUCING THE COST OF LIVING

Millinery practice is just one of the popular practical courses in Home Economics.

students exercise their capacity to successfully conduct important and complicated enterprises without the directing influence of the officers of the College. The following successful organizations are conducted by agricultural students:

The Agricultural Club: This union of all the agricultural students in the University has been a power for good in promoting college spirit and loyalty to the College of Agriculture. The organization has worked unselfishly for the best good of all and is worthy of the active support of every agricultural student.

The College Farmer: The agricultural college paper is published monthly. Its excellent management deserves great credit for the uniformly high character of the publication. The purpose of the paper is to present reliable articles on agricultural subjects and to bring to the attention of the farmers and others the work of the college and station. The editors and managers are elected annually by the Agricultural Club.

The County Fair: Once a year the agricultural students give a county fair. This event calls for the display of considerable ability in organization and is useful in stimulating the ingenuity of individual students. A live stock, agricultural, and horticultural display divides attention with more recreative features provided by the students.

Horticultural Seminar Society: This organization is composed of graduates and undergraduates who are specializing in horticulture. Its meetings are held twice a month and are given over to the reading of scientific papers and informal discussions dealing with horticultural problems.

The Grange: The interests and responsibilities of the agricultural student do not end with his immediate surroundings in college. He justly feels that he owes a duty to the farming class to which he belongs. In the Grange faculty and students meet and discuss the broader phases of agriculture which are of interest to them as farmers rather than students.

Alpha Zeta and Gamma Sigma Delta: These are honorary societies whose membership is limited to men who attain high rank as students. It is an honor to be elected to membership in these associations.

V. PRACTICAL EXCURSIONS

In order to bring students into the closest possible touch with the field of practical agriculture, different departments annually arrange for a number of excursions, mainly to the farms of successful farmers and breeders. The practical excursion, therefore, becomes an important factor in helping the college to impress upon the student the close connection between the work of the class room and laboratory and the practical field of agriculture.

VI. SAFE-GUARDING THE HEALTH OF STUDENTS

Every precaution which a University can logically take is provided for safe-guarding the health of students during their college course. During the student's first year, he is required to take military drill three times a week. This affords systematic exercise in the open air and helps materially to counteract the possible bad results which might follow too close confinement in class rooms. Every form of athletics is encouraged in order to get students to exercise often, and to keep them in the open air as much as is consistent with good scholarship. The University has also provided medical advisers to whom all students may go for consultation and medical advice. This service is free. In case of actual sickness, Parker Memorial Hospital, one of the institutions of the University, is available for the use of students. Regular hospital service including bed, board and ordinary nursing and medicine is free to students carrying twelve hours or more of work. From the standpoint of conserving student health, the University makes it its business first of all to prevent sickness as far as possible. In the few cases where prevention fails the facilities are such as will guarantee the best possible attention and care that a student can receive while away from home.

VII. CULTURAL ADVANTAGES

Each year the University brings to Columbia talented lecturers, musicians and artists. A series of musical concerts under the auspices of Phi Mu Alpha, a musical fraternity, has become an established part of the season's attractions. Several good plays are presented each year in the University Auditorium. The student assemblies held at frequent intervals are addressed by noted men from all parts of the United States and occasionally by men from abroad. Farmers' Week and Journalism Week draw to the University men of note in the fields of agriculture and journalism. The Art Lovers' Guild brings to the University some of the finest collections of paintings and art work that can be had outside of the principal art centers.

Students who are especially interested in a musical training will find ample facilities for such training in the University band, glee club, orchestra, or chorus. The city of Columbia, outside of the University, has some of the best teachers of vocal and instrumental music that can be found anywhere.

VIII. SOCIAL AND RELIGIOUS ADVANTAGES

The social life of the student receives faculty supervision so that, while allowing the fullest amount of enjoyment, all social events are directed into good wholesome channels and are never allowed to interfere with the student's real purpose at the University. All the leading religious denominations have fine church buildings and competent pastors. Students are given every opportunity to associate themselves with the various church organizations. The local congregations earnestly and effectively serve the student needs. Two of the churches employ "student pastors" whose whole time is devoted to the religious life of the students.

Young Men's Christian Association: The agricultural students have always taken an active interest in the Young Men's Christian Association of the University. This association owns a \$60,000 stone building devoted to the religious and social life of the students of the University. In the building are rooms for the accommodation of eighty students; in addition there are quarters for the secretary and other officers of the association; an auditorium for meetings; and various committee rooms used by the student organizations. New students are advised to confer with the secretary of the Young Men's Christian Association in reference to finding suitable places to board and room. Students desiring employment should also consult the secretary in charge of this work in the Y. M. C. A. Building.

IX. COLUMBIA A DESIRABLE STUDENT HOME

Columbia is an ideal college town. The residents realize that the state of Missouri has entrusted them with the sacred responsibility of providing a clean, wholesome environment for her sons and daughters during the four or more years of their college life. There are no saloons in Columbia and the regulations in regard to the liquor traffic are rigidly enforced. The city board of health is diligent in enforcing the health ordinances. The fire department looks to the proper equipment of all rooming and boarding houses so that the danger from fire is practically eliminated. The water supply is the best that deep-well service can afford.

Columbia is a city of broad, paved streets, of beautiful shade trees, and home-like dwellings. The houses in the University section are built with an eye to beauty, comfort, and utility. In these houses, the homes of citizens, students in the College of Agriculture make their homes. There are two dormitories for men but these have a total capacity of only 140 students.

AGRICULTURE AND HOME ECONOMICS FOR WOMEN

Attention is called to the special curriculum in agriculture and home economics (see p. 26) which has been arranged for the benefit of young women in the country who desire to have a knowledge of modern methods of agriculture. This course is correlated with the work in home economics and it is possible to secure a very complete training in the latter subject while pursuing courses in agriculture. The agricultural subjects offered to women are largely in the departments of agronomy, horticulture, botany, and poultry husbandry.

REQUIREMENTS FOR ADMISSION

High school subjects which are required for admission are designated in terms of "units," a unit being the equivalent of a subject pursued five periods a week for at least thirty-six weeks, four units constituting a year's work.

The following are the requirements for admission as a regular student to the College of Agriculture.

College of Agriculture: Fifteen units, the equivalent of a four years' high school course, are required for admission to the College of Agriculture. Three units in English and one unit in algebra are fixed requirements. The remaining eleven units may be selected from the list given on the next page. In preparation for admission to the College of Agriculture, students are strongly urged to take at least one laboratory science; if only one science is taken, it is recommended that it be physics.

Entrance Conditions: Applicants for admission who are deficient in a small portion of the requirements may be admitted conditionally at the discretion of the dean of the University faculty.

Students from accredited schools will not be admitted, subject to a condition, unless they are graduates of such schools.

Entrance conditions to the College of Agriculture must be removed within one year from the date of entrance. Students should consult with the dean of the University faculty regarding the removal of such conditions.

SUBJECTS ACCEPTED FOR ADMISSION

The subjects in which entrance units may be offered, the minimum and the maximum number of units that may be offered in each

Special Students: Mature men and women may be admitted to the College of Agriculture for special study in such subjects as they are prepared to pursue with profit to themselves. Such students must be at least 21 years old. Special students are not candidates for degrees and cannot become such until they have fulfilled all requirements for admission. An application for admission as a special



STUDENTS DOING GARDEN WORK

All the processes necessary to successful horticultural and garden practice are taught by actual orchard and garden work.

student should be made to the Dean of the University Faculty. If the dean approves the application he will issue the candidate an entrance card as a special student.

Admission from Junior Colleges: All students who have graduated from accredited junior colleges in this or other states may enter the junior year of the College of Agriculture. If the student has taken work in science in the junior college he can generally complete the technical requirements in the College of Agriculture in approximately two years. Many Missouri students are embracing this opportunity to complete their education and secure instruction in agriculture.

Sophomores from Standard Colleges: The curriculum of the College of Agriculture is so arranged that students who have completed their sophomore year in a standard college may secure credit for all the work done and these credits will be accepted for a part of the requirements for the degree of Bachelor of Science in Agricul-

ture. If such students have had some work in science in their college course, it is possible to complete the requirements for Bachelor of Science in Agriculture in two years. An increasingly large number of college students are taking advantage of this opportunity.

HOW TO ENTER THE COLLEGE OF AGRICULTURE

First. Write to the Dean of the University Faculty for an application blank.

Second. When this blank is received take it to the principal of the high school (or other school) in which your credits were received, tell him that you wish to enter the College of Agriculture and ask him to fill out the blank.

Third. When the application blank is properly filled out mail it to the Dean of the University Faculty, Columbia, Missouri. The dean will then notify the student that his credits are approved or that he will be required to take entrance examinations in certain subjects.

Fourth. Come to Columbia on September 14, 1914 (or February 1, 1915, if you wish to start with the opening of the second semester). Plan to be in Columbia before the second registration day at the latest.

Fifth. Go to Academic Hall on the main campus where you will receive instructions in regard to registration.

Sixth. For further information in regard to entrance write to the Dean of the University Faculty, Columbia, Missouri.

SCHOLARSHIPS AND FELLOWSHIPS

For Undergraduate Students: For particulars in regard to undergraduate scholarships and prizes, see pages 71 to 79 of the University of Missouri catalogue for 1913-14.

For Graduate Students: The Missouri College of Agriculture is emphasizing graduate instruction in agriculture. Wise leadership requires capacity for independent thought and original research. All students who intend to continue as teachers and investigators in colleges and in experiment stations are advised to continue their studies in the Graduate School of the University.

To encourage graduate study the University offers scholarships paying \$200 a year and fellowships paying \$400. Graduates of colleges are eligible for these agricultural scholarships and fellowships. Further information in reference to the fellowships may be had by writing to the Dean of the College of Agriculture.

FEES AND EXPENSES

Tuition is free in all divisions of the University to students who are residents of the State of Missouri. Non-residents of the state are required to pay a tuition fee of \$10 a semester, except in the Graduate School. A library, hospital, and incidental fee of \$10 a semester is required of all students, except those in the Short Winter Courses in Agriculture, and those especially exempt by law or by rules of the Curators of the University of Missouri.

In laboratory courses a deposit is required to pay for the material used and damage to scientific apparatus.

The necessary expenses for the freshman year are estimated in the table given herewith:

Estimated Expenses of Freshman Year:

Library, hospital, and incidental fee	\$ 20
Room rent and room furnishings	35
Board for thirty-six weeks	90
Books, stationery, and school supplies	25
Military suits	15

Laboratory Deposits:

General inorganic chemistry	\$ 10
Botany, \$5; dairy, \$5	10
Analytical chemistry	15
Farm crops	3
Laundry, \$15; incidentals, \$25	40

Total\$263

The above estimate is a minimum and does not include cost of travel, clothing, or entertainments, and assumes that the student will live in the University dormitories. The cost of board and room out in town will be higher. From one to five dollars of the total chemistry fees paid during the year may be returned depending upon how much laboratory apparatus is broken by the student. Students may return their military uniforms at the end of the year and receive back a portion of the original deposit depending upon the condition of the suits when returned.

PAYING ONE'S WAY THROUGH THE UNIVERSITY

It is variously estimated that from 20 to 30 per cent of the students in the College of Agriculture are paying all or a considerable portion of their expenses by working while attending the University. A limited number of students work for the various departments of the college in caring for the live stock, assisting in the dairy department, working for the experiment station, helping in the preparation of hog cholera serum, and giving assistance in pruning, spraying

and planting on the horticultural grounds. About two hundred students were given a greater or less amount of work in these various departments last year.

Students also find employment in Columbia caring for furnaces, waiting on tables, clerking, and in numerous other ways.

DEGREES

The degree of Bachelor of Science in Agriculture is conferred upon all students completing the four-year curriculum in agriculture for men and the four-year curriculum in agriculture and home economics for women.

The degree of Bachelor of Science in Forestry is conferred upon all students completing the four-year curriculum in forestry. The degree of Master of Forestry is conferred upon all students completing the five-year curriculum in forestry.

The degree of Master of Arts is conferred upon students by the Graduate School for one year's graduate study in any of the departments of agriculture. (See announcement of the Graduate School.)

The degree of Doctor of Philosophy is conferred upon students in the Graduate School who have devoted not less than three years of advanced study to some special branch and have attained exceptional proficiency in original research.

CURRICULA IN THE COLLEGE OF AGRICULTURE

A. Four-year curriculum in agriculture for men, leading to the degree of Bachelor of Science in Agriculture (B. S. in Agr.) (See p. 25.)

B. Four-year curriculum in agriculture and home economics for women, leading to the degree of Bachelor of Science in Agriculture (B. S. in Agr.). (See p. 26.)

C. Five-year curriculum in forestry, leading to the degree of Master of Forestry (M. F.). Upon the completion of the first four years of this curriculum the degree of Bachelor of Science in Forestry (B. S. in F.) is conferred. (See p. 27.)

D. Two-Year Winter Course in Agriculture. (See p. 29.)

E. Short Course for Women. (See p. 31.)

F. Short Course in Dairying. (See p. 31.)

G. Special Poultry Course. (See p. 32.)

H. A Farmers' Short Course in Agriculture is offered each year in January at Columbia and several Branch Short Courses in Agriculture are given in different localities in Missouri. (See p. 32.)

A. FOUR-YEAR CURRICULUM IN AGRICULTURE FOR MEN

All students who are candidates for the degree of Bachelor of Science in Agriculture (B. S. in Agr.) must satisfactorily complete 124 hours of work including the requirement in military science. Candidates for graduation who matriculate without having had adequate farm experience, are required to devote the equivalent of two summer vacations or six months to practical work on an approved farm.

The schedule printed below includes the number of hours and the subjects prescribed for the degree in agriculture. Where electives are indicated the student is permitted to select other university subjects. Students who have not had physics in the high school are required to take physics, course 1a or 1b.

CURRICULUM***Freshman—Group I**

<i>First Semester</i>		<i>Second Semester</i>	
Agronomy, 1a	3 hrs.	Animal husbandry, 2b	2 hrs.
Animal husbandry, 1a ...	3 "	Chemistry, 25b	5 "
Botany, 1a	5 "	Dairy husbandry, 1b	3 "
Chemistry, 4a or 6a	5 "	English, Bb	5 "
Military science	1 "	Military science	1 "
<hr/>		<hr/>	
17 hrs.		16 hrs.	

Freshman—Group II

<i>First Semester</i>		<i>Second Semester</i>	
Animal husbandry, 1a	3 hrs.	Agronomy, 1b	3 hrs.
Dairy husbandry, 1a	3 "	Animal husbandry, 2b	2 "
English, Ba	5 "	Botany, 1b	5 "
Horticulture, 1a and 2a..	5 "	Chemistry, 4b or 6b	5 "
Military science	1 "	Military science	1 "
<hr/>		<hr/>	
17 hrs.		16 hrs.	

Sophomore—Group I

<i>First Semester</i>		<i>Second Semester</i>	
Agronomy, 2a	5 hrs.	Agricultural chemistry, 1b.	5 hrs.
Organic chemistry, 5a	3 "	Botany, 3b	3 "
Veterinary science, 1a	3 "	Horticulture, 1b and 2b....	5 "
Zoology	5 "	Veterinary science, 2b	3 "
<hr/>		<hr/>	
16 hrs.		16 hrs.	

*The students during the freshman and sophomore years are divided into two groups. The subjects taken by each group are the same but are taken in a different order.

Sophomore—Group II

<i>First Semester</i>		<i>Second Semester</i>	
Agronomy, 2a	5 hrs.	Organic chemistry, 5b	3 hrs.
Botany, 3a	3 "	Veterinary science, 2b	3 "
Chemistry, 25a	5 "	Zoology, 1b	5 "
Veterinary science, 1a	3 "	Elective	5 "
<hr/>		<hr/>	
16 hrs.		16 hrs.	

Junior

<i>First Semester</i>		<i>Second Semester</i>	
Agricultural chemistry, 1a.	5 hrs.	Agronomy, 100b	5 hrs.
Animal husbandry, 100a ..	3 "	Animal husbandry, 101b..	3 "
Botany, 100a or veterinary		Horticulture, 100 to 102....	2 "
science, 3a	3 "	Elective	5 "
Horticulture, 100 or 102..	2 "	<hr/>	
Elective	2 "	15 hrs.	
<hr/>			
15 hrs.			

Senior

<i>First Semester</i>		<i>Second Semester</i>	
Entomology, 2a	3 hrs.	Elective	14 hrs.
Geology, 2a	3 "		
Elective	9 "		
<hr/>			
15 hrs.			

B. FOUR-YEAR CURRICULUM FOR WOMEN*Agriculture and Home Economics*

The College of Agriculture offers an excellent course for women who may be interested in certain phases of agriculture and in home economics. This curriculum includes a larger amount of instruction in plant studies and a less amount in such subjects as animal husbandry and veterinary science. The degree of Bachelor of Science in Agriculture is given for the completion of 124 hours' work.

CURRICULUM**Freshman**

<i>First Semester</i>		<i>Second Semester</i>	
Chemistry, 4a or 6a	5 hrs.	Chemistry, 25b	5 hrs.
English, Aa and 2	5 "	Home economics, 1b	5 "
Horticulture, 1a and 4a....	5 "	Botany, 1b	5 "
Physical training	1 "	Physical training	1 "
<hr/>		<hr/>	
16 hrs.		16 hrs.	

Sophomore

<i>First Semester</i>		<i>Second Semester</i>	
Chemistry, 5a	3 hrs.	Botany, 3b	3 hrs.
Agronomy, 1a	3 "	Dairying, 1b	3 "
Horticulture, 8	2 "	Horticulture, 8	2 "
English, 2	2 "	English, 2	2 "
Elective	5 "	Elective	5 "
<hr/>		<hr/>	
15 hrs.		15 hrs.	

Junior

<i>First Semester</i>		<i>Second Semester</i>	
Home economics, 101a....	3 hrs.	Zoology, 1b	5 hrs.
Elective	12 "	Elective	10 "
<hr/>		<hr/>	
15 hrs.		15 hrs.	

Senior

<i>First Semester</i>	<i>Second Semester</i>
Elective	Elective
16 hrs.	16 hrs.

C. FIVE-YEAR CURRICULUM IN FORESTRY

The five-year curriculum in forestry trains men for the profession of forestry. Its graduates are fitted for work in the lumbering industry and other private forestry enterprises, the United States Forest Service and with state forestry departments.

Nature of the Curriculum: The first three years of work are devoted primarily to the sciences underlying the profession. The theoretical principles of forestry are studied at the University, but the practical application of those principles is carried out on the University forests aggregating 50,000 acres in the Ozark region. "A Forest Camp" during the Summer Session of the University is established on this forest for eight weeks, where the following subjects, required of third-year students in forestry, are given: Forest mensuration, silviculture, lumbering, and forest surveying. Tents, cots, and general camp equipment are furnished for this camp, but each student must provide his own blankets and personal outfit. During the last eight weeks of the spring semester of the fifth year of the course, students will make a working plan of some portion of this forest.

Since most of the subjects outlined in the first two years of the curriculum are pursued in the College of Arts and Science, students who have completed 60 credit hours in that college will be admitted in forestry at the beginning of the third year.



A FORESTRY CLASS IN ACTION

Turning a rocky hillside into a profit yielding red cedar grove.

Degrees. The degree of Master of Forestry is conferred on those students who have successfully fulfilled all the requirements of the five-year curriculum. The degree of Bachelor of Science in Forestry is conferred on those students who have fulfilled all the requirements in the curriculum in forestry at the end of the fourth year.

CURRICULUM

First Year

English, 1a	3	English, 4b	3
German, 1a	5	German, 2b	5
Chemistry, 6a	5	Chemistry, 5b	3
Forestry, 10a, dendrology	3	Botany, 1b	5
Military science and tactics ..	1	Military science and tactics....	1

Second Year

Mathematics, 3a	5	Botany, 4b	3
Physics, 1a	5	Mathematics, 4b	5
Forestry, 11, forest seeds and seedlings	1	Geology, 1b	5
		Forestry, 11 forest seeds and seedlings	1

Botany, 100a	5	Botany, 101b, ecology	2
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Third Year

Forestry, 120, silviculture	5	Entomology, 105b, for. ent. ...	2
Zoology, 1a	5	Civil engineering, 101b	2
Mechanical drawing, 7a	3	Forestry, 121b, for. mensur. ...	3
Geology, 6a	3	Forestry, 122b, for. eng'g	5
		Forestry, 120, silviculture	5

Summer Camp

Forestry, S124, silvicultural praxis	2
Forestry, S125, mensuration	3
Forestry, S126, lumbering	3

Fourth Year

Botany, 2a	3	Botany, 108b, tree diseases	3
Economics, 1a	5	American government, 2b	5
Topographic drawing, 3a	1	Civil engineering, 104b	3
Forestry, 127a, for. products... ..	2	Forestry, 132b, wood tech.	4
Forestry, 128a, lumber trade ..	1	Forestry, 133b, seeding and	
Forestry, 129a, forest econ. ...	3	planting	2
Forestry, 130a, sem. in silvil. .	2		

Fifth Year

Forestry, 200, policy and law. 3	Forestry, 200, policy and law.. 3
Forestry, 201, for. organization 3	Forestry, 201, for. organization 3
Forestry, 202a, for. valuation. 3	Forestry, 206b, for. history 1
<i>Elective</i>	Forestry, 207b, for. adminis. .. 1
Forestry, 203a, lumbering	2
Forestry, 205a, care of trees.. 3	Forestry, 208b, for. plans. 8
Animal Husbandry, 104, grazing 2	

D. TWO-YEAR WINTER COURSE IN AGRICULTURE

A shorter course in agriculture begins November 2 and continues for four months during the winter. This course trains men for successful farming. The Two-Year Winter Course offers the largest amount of practical instruction that it is possible to give in the time scheduled. Any person more than 16 years old may enter this course without examination. All persons completing the subjects in the schedule following will be awarded a certificate certifying that they have completed all the requirements of the Two-Year Winter Course in Agriculture. A special announcement is published describing the plan and purpose of this course and may be had upon application to the Superintendent of Short Courses, Columbia, Missouri.

The following schedule of studies is offered in the years and during the terms indicated:

SCHEDULE OF STUDIES FOR TWO-YEAR WINTER COURSE IN AGRICULTURE

First Year

FIRST TERM	Lecture hours	Labora- tory hours
Cereal crops and grain judging	21	21
Farm dairying	14	14
Feeds and feeding	21	
Live stock judging		21
Breeds of live stock	14	
Shop work or		14
parliamentary practice		14
Poultry husbandry	21	
SECOND TERM		
Veterinary science	14	14
Tillage and cultural methods	14	7
Animal breeding	21	
Orcharding and small fruits	14	14
Soils of Missouri	14	
Live stock judging		21
Shop work or		14
landscape gardening	14	7

Second Year

FIRST TERM		
Propagation and cultivation of plants	14	14
Veterinary science	14	14
Injurious insects	14	7
Live stock production	21	
Forage crops	14	7
Farm accounts		14
Soil management	14	
Farm poultry practice		14
SECOND TERM		
Soil fertility	21	7
Farm management	14	
Milk production	21	
Stock judging	7	21
Farm buildings and machinery	14	14
Poultry husbandry	7	14
Farm accounts		14

E. SHORT COURSE FOR WOMEN

The Short Course for Women comprises seven weeks of work and is given during the months of November and December each winter. Every facility is provided for securing, in the time given, the largest possible amount of practical information relating to the care and management of the home and to those agricultural subjects which have a more or less direct bearing upon the household.

The following subjects are offered: Food work; hygiene and sanitation; sewing; laundry work; home care of the sick; propagation and cultivation of plants; orcharding and small fruits; landscape gardening; poultry husbandry; farm dairying.

Students are permitted to elect any of these subjects.

There is no requirement for entrance to this course except that a student must be 16 years old or older. The total expenses of the course need not exceed \$60. A probable estimate of expenses is as follows:

Fees	\$ 8.50
Room (with room-mate)	10.00
Board	30.00
Laundry	4.00
<hr/>	
Total	\$52.50

F. SHORT COURSE IN DAIRYING

Instruction in creamery work has been given each year since the dairy department was established in 1901. The growing interest in this industry in Missouri makes it advisable to increase the time devoted to this subject and to add instruction in ice cream making. The Short Course in Dairying is offered for the benefit of those who wish to fit themselves for creamery work or to operate large private dairies. It covers seven weeks' time, beginning January 5, 1914. It ends February 21. The laboratory fee for this course is \$5.

STATEMENT OF STUDIES

	LESSONS
Elements of dairying	14
Milk production	21
Testing milk, cream, butter	20
Dairy bacteriology	10
Creamery butter making	55
Ice cream making	20

G. SPECIAL POULTRY COURSE

This course fits the needs of the poultry specialist. It takes up the subject of poultry raising, not from the standpoint of the farm flock, but from that of the commercial poultry raiser. The course comprises seven weeks of work. The opening and closing dates correspond to the second term of the Two-Year Winter Course. The total expense need not exceed \$50.

Course of Study: Students spend from five to six hours daily in actual poultry work, comprising a study of housing, fattening, killing, marketing, feeding for egg production, incubating and breeding. All the different breeds are studied, together with diseases, their prevention and cure. Ample facilities are provided for poultry work so that students obtain actual practice so far as the time and the season permit in conducting the various operations which are studied.

STATEMENT OF STUDIES

Poultry Management. Lecture course. One lecture daily on the subjects of housing, yarding, fattening, dressing, marketing, incubating, brooding, and general care of poultry. This course will include a study of breeds, together with methods of feeding and breeding.

Poultry Management. Laboratory. A daily laboratory period in which students will actually do the work covered by the lecture course.

Poultry Practice. A practice course in which the student feeds and cares for laying hens, operates incubators and brooders, and learns the art of poultry raising by actually doing the work.

Other Studies. In addition to the above, regular students in the special poultry house will elect two subjects from the Two-Year Winter Course. Orchardling and small fruits is recommended as one of these.

H. FARMERS' SHORT COURSE

In January each year the college offers a short course in agriculture for farmers in connection with the Farmers' Week Program arranged in co-operation with the State Board of Agriculture. In this course special lectures and demonstrations in soils, farm crops, animal husbandry, dairying, horticulture, farm management, forestry, rural economics, veterinary science, and poultry farming are given in the class rooms, laboratories, and live stock pavilion belonging to the University. Twenty-two hundred and forty farmers were enrolled for this course in 1914. Among the farmers attending were representatives from 92 counties of Missouri and 19 states. This course will be given again in January, 1915.

STATEMENT OF COURSES

Explanation: Courses designated by a number with the letter *a* attached thus: 2a, 120a, are given in the first semester only. Those designated by a number with the letter *b* attached thus: 2b, 111b, are given in the second semester only. Those designated merely by a number are continuous courses, and are given both semesters. Courses designated by a number with the letter *s* attached thus: 4s, 5s, are given during the Summer Session. Arabic numerals in parenthesis indicate the number of hours credit in a semester. Courses numbered from 1 to 99 are for under-classmen, from 100 to 199 for upper-classmen, and from 200 to 299 for graduates. For schedule of days and hours, application should be made to the Registrar after August 1.

A full description of courses will be found in the annual catalogue.

AGRICULTURAL CHEMISTRY

1a and 1b. **Agricultural Chemistry.*** (5). Mr. TROWBRIDGE; Mr. MOULTON.

101a and 101b. **Advanced Agricultural Chemistry.** (3 to 5). Mr. TROWBRIDGE; Mr. MOULTON; Mr. HAIGH.

201a. **Physiological Chemistry of the Domestic Animal.** (3). Mr. TROWBRIDGE; Mr. MOULTON; Mr. PALMER.

202a and 202b. **Research in Agricultural Chemistry.** (5 or more). Mr. TROWBRIDGE; Mr. HAIGH; Mr. MOULTON; Mr. PALMER.

203a. **Chemistry of Proteins.** (3). Mr. TROWBRIDGE.

204a and 204b. **Seminar.** (1). Mr. TROWBRIDGE.

AGRICULTURAL ENGINEERING

4a. **Farm Buildings.** (4). Mr. KELLEY.

5b. **Farm Machinery and Farm Motors.** (5). Mr. KELLEY.

6a. **Construction Methods.** (3). Mr. KELLEY.

7b. **Farm Engineering.** (3). Mr. KELLEY.

AGRICULTURAL JOURNALISM

10a and 10b. **Agricultural Journalism.** (3). Mr. ROSS.

ANIMAL HUSBANDRY

1a. **Elementary Live Stock Judging.** (3). Mr. WEAVER; Mr. HACKEDORN; Mr. HUGHES; Mr. BRASHEAR.

2b. **Elementary Live Stock Judging.** (2). Mr. WEAVER; Mr.

*Analytic and organic chemistry are prerequisites to this course.



STOCK JUDGES IN THE MAKING

The University Show Herd supplies the kind of stock that enables a student to respond to good teaching.

HACKEDORN; Mr. HUGHES; Mr. BRASHEAR.

2a. Breeds of Live Stock. (3). Mr. ALLISON.

3b. Beef Production. (3). Mr. ALLISON.

4b. Sheep Production. (2). Mr. HACKEDORN.

5b. Pork Production. (2). Mr. WEAVER.

6b. Horse Production. (2). Mr. TROWBRIDGE.

7b. Advanced Live Stock Judging. (2). Mr. HACKEDORN.

100a. Animal Nutrition. (3). Mr. ALLISON.

101b. Animal Breeding. (3). Mr. TROWBRIDGE.

102a. Advanced Live Stock Judging. (3). Mr. TROWBRIDGE; Mr.

HACKEDORN.

103b. Stock Farm Management. (2). Mr. TROWBRIDGE.

104b. Grazing. (2). Mr. ALLISON.

200. Seminar. (2). Mr. MUMFORD; Mr. TROWBRIDGE; Mr. ALLISON; Mr. WEAVER; Mr. HACKEDORN.

201. Experimental Feeding. Mr. MUMFORD; Mr. TROWBRIDGE; Mr. ALLISON.

202. Research in Animal Husbandry. Mr. MUMFORD; Mr. TROWBRIDGE; Mr. ALLISON.

203. Animal Breeding. Mr. MUMFORD.

BOTANY

- 1a and 1b. **General Botany.** (5). Mr. DURAND; Mr. FREIBERG; Miss BEATTIE; Miss MUNDY; Miss ZILLES.
- 3a and 3b. **General Bacteriology.** (3). Mr. REED; Mr. GAINNEY.
- 100a. **Plant Physiology.** (3). Mr. REED.
- 103b. **Soil Bacteriology.** (3). Mr. GAINNEY.
- 108b. **Diseases of Forest Trees.** (3). Mr. REED.

CHEMISTRY

- 4a and 4b, or 6a and 6b. **General Inorganic Chemistry.** (5). Mr. SCHLÜNDT; Mr. WISE; Mr. UNDERWOOD; Mr. DUNCAN; Mr. MUENCH; Mr. LOGAN; Miss HUNKINS.
- 25a and 25b. **Analytical Chemistry.** (5). Mr. BROWN; Mr. SHEPARD; Mr. BARKER.
- 5a and 5b. **Elementary Organic Chemistry.** (3). Mr. CALVERT; Mr. JONES; Mr. BLACK; Mr. YANCY.

DAIRY HUSBANDRY

- 1a and 1b. **Elements of Dairying.** (3). Mr. RINKLE; Mr. REGAN; Mr. REED; Mr. STANTON.
- 100b. **Milk Production.** (4). Mr. ECKLES; Mr. REGAN.
101. **Dairy Bacteriology.** (2). Mr. ECKLES.
- 102a. **Cheese Making.** (2). Mr. RINKLE.
- 103a. **Judging Dairy Cattle.** (1). Mr. REGAN; Mr. REED.
105. **Dairy Manufactures.** (2). Mr. RINKLE; Mr. STANTON.
201. **Seminar.** (1). Mr. ECKLES.
202. **Research in Dairy Husbandry.** Mr. ECKLES.
203. **Special Investigation in Composition of Milk.** Mr. PALMER.
204. **Research in Dairy Manufactures.** Mr. ECKLES; Mr. RINKLE.
205. **Dairy Manufactures.** Mr. RINKLE.

ENGLISH.

- Ba and Bb. **English Composition and Literature.** (5). Mr. WHITE; Mr. BUELL; Mr. BURROWES; Mr. McEUEEN.

ENTOMOLOGY

- 1b. **General Entomology.** (3). Mr. HASEMAN.
- 2a and 2b. **Economic Entomology.** (3). Mr. HASEMAN, and Mr. TALBERT.
- 103a. **Elementary Morphology.** (2). Mr. HASEMAN.
- 104b. **Elementary Systematic Entomology.** (2). Mr. HASEMAN.



MANY STUDENTS STUDY BEE CULTURE ..

Instructions in apiary practice is given by actually handling bees and bee equipment.

105b. Forest Entomology. (2). Mr. HASEMAN.

109b. Apiary Culture. (2). Mr. HASEMAN, and Mr. TALBERT.

110b. Advanced Economic Entomology and Insectary Methods. (2). Mr. HASEMAN.

111a. Morphology, Histology, and Development of Insects. (3). Mr. HASEMAN.

200. Research. Mr. HASEMAN.

FARM CROPS

1a and 1b. Forage Crops. (3). Mr. HACKLEMAN; Mr. DOUGLASS; Mr. EVANS.

2a. Crop Production. (5). Mr. HUTCHISON; Mr. HACKLEMAN; Mr. DOUGLASS.

8b. Fiber Crops. (2). Mr. EVANS.

100a. Field Crop Management. (2). Mr. HUTCHISON.

101b. Special Grain Judging. (3). Mr. HACKLEMAN; Mr. DOUGLASS; Mr. EVANS.

- 102b. Cereal Breeding. (2). Mr. HUTCHISON.
- 202. Seminar. Mr. HUTCHISON.
- 201. Special Investigations. Mr. HUTCHISON.

FARM MANAGEMENT

- 105a. Farm Accounts. (3). Mr. FOARD.
- 110b. Farm Organization. (3). Mr. JOHNSON.
- 112a. Farm Records. (2). Mr. JOHNSON.
- 113b. Farm Administration. (2). Mr. JOHNSON.
- 114. Seminar. Mr. JOHNSON; Mr. FOARD.
- 201. Investigation of Types of Farming. Mr. JOHNSON; Mr. FOARD.
- 202. Investigation of Cost of Production and the Distribution of Labor. Mr. JOHNSON; Mr. FOARD.
- 207. Investigation of Systems of Farm or Rural Practice and Organizations. Mr. JOHNSON; Mr. FOARD.

FORESTRY

- 2b. Principles of Forestry. (3). Mr. DUNLAP.
- 10a. Dendrology. (3). Mr. PEGG.
- 11. Forest Seeds and Seedlings. (1). Mr. DUNLAP.
- 120. Silviculture. (5). Mr. DUNLAP.
- 121b. Forest Mensuration. (3). Mr. PEGG.
- 122b. Forest Engineering. (5). Mr. PEGG.
- 124s. Silvicultural Praxis. (2). Mr. DUNLAP.
- 125s. Mensuration. (3). Mr. PEGG.
- 126s. Lumbering. (3). Mr. PEGG.
- 127a. Forest Products. (2). Mr. PEGG.
- 128a. Lumber Trade. (1). Mr. PEGG.
- 129a. Forest Economics. (3). Mr. DUNLAP.
- 130a. Seminary in Silviculture. (2). Mr. DUNLAP.
- 132b. Wood Technology. (4). Mr. DUNLAP.
- 133b. Seeding and Planting. (2). Mr. DUNLAP.
- 200. Policy and Law. (3). Mr. DUNLAP.
- 201. Forest Organization. (3). Mr. PEGG.
- 202a. Forest Valuation. (3). Mr. PEGG.
- 203a. Lumbering. (2). Mr. PEGG.
- 205a. Care of Trees. (3). Mr. DUNLAP.
- 206b. History of Forestry. (1). Mr. DUNLAP.
- 207b. Forest Administration. (1). Mr. DUNLAP.
- 208b. Forest Plans. (8). Mr. PEGG.

GEOLOGY

- 2a and 2b. Physical Geology. (3). Mr. TARR; Mr. SCOTT; Mr. McCoy.



A HOME ECONOMICS KITCHEN

Where theory and practice meet in home economics instruction.

HOME ECONOMICS

- 1a or 1b. Introduction to Home Economics. (5). Miss STANLEY.
 101a. House Sanitation. (3). Miss STANLEY.

HORTICULTURE

- 1a and 1b. Plant Propagation. (2). Mr. HOWARD; Mr. WIGGANS.
 2a and 2b. Vegetable Gardening. (3). Mr. SZYMONIAK.
 3a and 3b. The Evolution of Cultivated Plants. (2). Mr. WHITTEN.
 100a and 101b. Fruit Production. (2). Mr. WHITTEN; Mr. HOWARD.
 102. Landscape Gardening. (2). Mr. MAJOR.
 103. Floriculture. (1). Mr. MAJOR.
 104a. Fruit Judging. (1). Mr. HOWARD.
 105a and 106b. Advanced Pomology. (3). Mr. WHITTEN.
 107b. Olericulture. (3). Mr. WHITTEN.

108. Ornamental Plants. (1 to 3). Mr. MAJOR.
109. Elementary Landscape Design. (3). Mr. MAJOR.
110. Special Problems. Mr. WHITTEN; Mr. HOWARD; Mr. WIGGANS;
Mr. MAJOR.
200. Special Investigation. Mr. WHITTEN; Mr. HOWARD; Mr.
WIGGANS; Mr. MAJOR.

METEOROLOGY

- 1b. Meteorology. (1). Mr. REEDER.

POULTRY HUSBANDRY

- 1a. Elementary Poultry Raising. (3). Mr. KEMPSTER.
2b. Elementary Poultry Raising. (3). Mr. KEMPSTER.
3a. Marketing Poultry Products. (3). Mr. KEMPSTER.
4a. Poultry Judging. (3). Mr. KEMPSTER.
5b. Poultry Farm Management. (3). Mr. KEMPSTER.
6b. Incubating and Brooding Practice. (3). Mr. KEMPSTER.

RURAL ECONOMICS

- 1a. Principles of Rural Economics. (3). Mr. GROMER.
100b. Principles of Rural Economics. (2). Mr. GROMER.
101b. Rural Organization and Marketing. (3). Mr. GROMER.
102b. Land Tenure and Different Forms of Tenancy. (2). Mr.
GROMER.
110a. Economic History of Agriculture. (2). Mr. GROMER.
200. Seminar. Credit to be arranged. Mr. GROMER.

RURAL SOCIOLOGY

- 115a. Rural Sociology. (2). Mr. BERNARD.

SOILS

- 3a and 3b. Soil Physics and Soil Fertility. (5). Mr. MILLER;
Mr. LeCLAIR.
103a. Soil Management. (5). Mr. MILLER; Mr. LeCLAIR; Mr.
HUDELSON.
200b. Soil Investigations. (3). Mr. MILLER; Mr. LeCLAIR; Mr.
HUDELSON.
201. Special Investigations. Mr. MILLER.
202. Seminar. Mr. MILLER.

VETERINARY SCIENCE

1a. **Veterinary Anatomy.** (3). Mr. BACKUS; Mr. TUCKER.

2b. **Veterinary Physiology.** (3). Mr. CONNAWAY; Mr. BACKUS;
Mr. TUCKER.

3a. **Veterinary Medicine and Surgery.** (3). Mr. BACKUS; Mr.
TUCKER.

104. **Topographic Veterinary Anatomy.** Mr. CONNAWAY.

105b. **Veterinary Medicine.** (3). Mr. BACKUS; Mr. TUCKER.

106a. **Veterinary Surgery and Ovstetrics.** (3). Mr. BACKUS; Mr.
TUCKER.

107. **Infectious and Parasitic Diseases of Farm Animals.** Mr.
CONNAWAY; Mr. GINGERY.

209. **Investigation.** Mr. CONNAWAY; Mr. BACKUS; Mr. GINGERY.

ZOOLOGY

1a and 1b. **General Zoology.** (5). Mr. CURTIS; Mr. DODDS.

WHAT THE COLLEGE OF AGRICULTURE IS DOING FOR MISSOURI

Hog Cholera Serum Distribution: An appropriation made by the forty-seventh General Assembly has enabled the Agricultural Experiment Station to materially increase its output of hog cholera serum. During the year, 208,619 doses were distributed to the farmers of Missouri. This is an increase of 30 per cent over the previous year. This serum was sent into ninety-nine counties and to 3389 farms. The number of doses sent out practically represents the number of hogs treated. Between 85 and 90 per cent of the hogs treated were saved. Even with the increased facilities, it has been impossible to do much more than to treat animals in herds in which the disease



MISSOURI FARMERS AT THE COLLEGE OF AGRICULTURE

During the 1914 Farmers' Week, 2240 farmers attended the College of Agriculture. They came from ninety-two counties of Missouri and eighteen other states.

had started. The application of the number of doses mentioned, therefore, means that approximately 175,000 hogs were saved by the use of this treatment. At ruling prices, this represents a cash saving to the farmers of Missouri of over a million dollars and probably a million and a half would be safely within the range of conservatism.

Outlying Experiment Fields: In order to increase the value of its investigations with crops and soils, the Missouri Agricultural Experiment Station has established eighteen outlying experiment fields in seventeen different counties of the state. These fields have been selected because each one is representative of the special soil and climatic conditions of that section of the state. Upon these fields the experiment station is conducting experiments in the use of fertilizers, variety tests of various crops suited to the locality and drainage experiments in those sections of the state where drainage is a problem.

Outlying experiment fields are located in the following counties: Knox, Linn, Nodaway, Pike, Callaway, Christian, Dent, Barton, Jasper,

Macon, Bates, Phelps, Audrain, St. Charles, Franklin, Shelby, and Lewis.

Soil Survey of Missouri Counties: In co-operation with the United States Department of Agriculture, the Missouri Agricultural Experiment Station has made a detailed soil survey of thirty-six counties in Missouri. With the present force of men engaged in the work, it is possible to complete five counties each year. In making a soil survey of a county, each quarter-section in the state is visited, soil samples taken and sent to the College of Agriculture at Columbia for chemical analysis. The report for each county shows the physical character of the soil as well as its chemical composition and includes a general agricultural survey of the county.

Up to the present time the following counties have been surveyed: Atchison, Barton, Bates, Cape Girardeau, Carroll, Cass, Cedar, Cooper, Crawford, Dunklin, Franklin, Greene, Howell, Jackson, Laclede, Lincoln, Macon, Marion, Miller, New Madrid, Nodaway, Stoddard, Pemis-
scot, Perry, Pike, Platte, Putnam, Ralls, Saline, Scotland, Shelby, St. Charles, St. Louis, Sullivan, Audrain, and Webster.

Seed Testing Laboratory: In co-operation with the Bureau of Plant Industry, the station has been conducting a seed laboratory in which farm seeds are examined free. This service which the station and the Department of Agriculture have been rendering to Missouri farmers has been in the highest degree valuable to those persons who have availed themselves of this opportunity.

During the last year 1337 samples of various seeds were tested. Of this number, 751 were from farmers and 586 from seedsmen. On many of these samples, a test was made both for purity and for germination. Altogether, there were 757 tests for purity, 949 for germination, 53 for rough examination and 134 for identification of the species. The per cent of clover and alfalfa seeds containing dodder was 17 as against 21 for the year preceding.

Co-operative Experiments with Missouri Farmers: The experiment station is co-operating with farmers in practically every county of the state along twenty-five different lines. Six departments of the college are directly concerned with this work of co-operation. The following table shows the extent of the co-operative work carried on by the college:

<i>Department</i>	<i>Number of Projects</i>	<i>Total Number Co-operators</i>	<i>Number Counties Co-operating</i>
Agronomy	8	133	74
Entomology	2	332	84
Dairy	3	11	11
Farm management	6	1870	76
Forestry	1	2	2
Horticulture	3	10	9



THE UNIVERSITY OF MISSOURI 1913 SHOW HERD

Winners of one grand-championship, five championships, twenty-four first prizes, five second prizes, six third prizes, eight fourth prizes and three prizes below the rank of fourth at three leading live stock shows: the Missouri State Fair at Sedalia; the Royal Live Stock Show at Kansas City and the International Live Stock Show at Chicago.

Branch Short Courses in Agriculture: In order to extend the teaching service of the College of Agriculture to mature farmers who are unable to leave their farms to come to Columbia, Branch Short Courses in Agriculture have been provided. These courses are given anywhere in the state where the local interest is sufficient to warrant the expense. The course is five days in length and the work is arranged to suit the special needs of the community in which it is held.

During the winter of 1913-14, Branch Short Courses in Agriculture were held at the following places:

Porter School near Kirksville, Adair County; Urbana, Dallas County; Pomona, Howell County; Callao, Macon County; Maywood, Lewis County; Farmington, St. Francois County; Orchard Farm, St. Charles County; Palmyra, Marion County; Malta Bend, Saline County; Holden, Johnson County; Shelbina, Shelby County; O'Fallon, St. Charles County.

The total attendance at these courses was 1,115.

Farmers' Meetings: Through the medium of farmers' institutes, special trains, and special meetings arranged by farmers' clubs, com-

mercial clubs, granges, county farm advisers and various other agencies, men from the College of Agriculture have been enabled to reach nearly 50,000 people in nearly half the counties of the state, during the past year. This form of extension work is of great importance in paving the way for more intensive and systematic work.

Agriculture in the Rural Schools: The department of rural education has continued its work of helping the rural schools of the state in the organization of agricultural instruction. In carrying out this work, the professor of rural education has made 163 addresses during the year to 18,304 people. Twenty of these addresses were on consolidation of schools and on the subject of reorganization of the course of study, making agriculture the central subject. Fully 3000 teachers have been reached in these addresses. Personal visits have been made to 65 schools. As noted elsewhere, 2500 letters have been written during the year. An investigation showed that more than 30,000 pupils were studying elementary agriculture in the rural schools of Missouri. At present the work is largely text book work but a beginning has been made and practical results may be expected in the immediate future.

County Farm Advisers: In the fall of 1912, the Missouri College of Agriculture entered into a co-operative agreement with the United States Department of Agriculture by which the college and the department each agreed to pay one-fourth the salary of an agricultural agent in Missouri counties in which the County Court would appropriate money for the remainder of the salary for such a man. The county agents in this state are known as farm advisers.

Twelve counties of Missouri now have county farm advisers. They are: Cape Girardeau, Buchanan, Pettis, Johnson, Dade, Audrain, Jackson, Marion, Scott, Cooper, Greene, and St. Francois. Saline County has organized a Farm Bureau and engaged a farm adviser who will begin work June 15.

Judging Live Stock: The demand for judges of live stock to assist at county fairs continues to grow. The college is not in position at present to extend its services as fast as the demands increase. During the last fair season, however, the college supplied live stock judges at fifty-three county fairs at which 385,000 people were in attendance.

Judging Corn: At thirty-six county fairs men from the college judged corn and small grains. The attendance at these various fairs and corn shows was 75,500.

Orchard Demonstrations: A large proportion of the orchards in Missouri as in other states are unprofitable because of lack of proper attention. In order to demonstrate the advantage of right methods of pruning, spraying, and cultivation, the Agricultural Experiment Station conducted five demonstration orchards in three of the fruit growing regions of the state. At Pierce City an orchard was sprayed three times with Bordeaux mixture and arsenate of lead (the latter

being used with the last two applications) with the following results at harvest time:

Variety	Missouri Pippin
Percentage of marketable fruit	
Sprayed	94 per cent.
Unsprayed	18 per cent.
Value of crop at current prices	
Sprayed	\$202.20 per acre.
Unsprayed	9.80 per acre.
Cost of spraying three times	12.00
Net profit due to spraying	180.40

Fertilizing Strawberries and Peaches: For many years it was believed by Missouri strawberry growers that nitrogen in some form was the proper fertilizer for strawberries. The experiment station has conducted fertilizer experiments on several of the leading strawberry farms of the state for several years and has invariably found that instead of increasing yields, nitrogen has reduced the yields. On the other hand, it has been found that an application of 225 pounds of acid phosphate an acre, has increased the acre yield to the value of \$40.

The recent year's experience shows that young peach trees newly set, fertilized each spring with one-half pound nitrate of soda a tree cultivated in under the outer spread of the branches, secured a fine crop of peaches which were earlier than the unfertilized young peach trees in the same orchard. On older peach orchards the use of nitrate of soda as a fertilizer combined with proper pruning in winter has secured an average of \$40 an acre more on the fertilized than on the unfertilized trees.

Agricultural Exhibits: Two complete exhibits representing the work of the College of Agriculture and the results of investigations conducted by the experiment station were sent out on county fair circuits during the second half of August and the month of September. During this time the following eleven fairs were visited:

FAIR	COUNTY	ATTENDANCE
Bowling Green,	Pike	18,000
Knox City,	Knox,	20,000
Green City,	Sullivan,	10,000
Maysville,	Dekalb,	9,000
Queen City,	Schuyler,	1,000
Columbia,	Boone,	20,583
Shelbina,	Shelby,	10,000
New Cambria,	Macon,	2,736
Palmyra,	Marion,	8,000
New London,	Ralls,	11,000
Sedalia (State Fair)	Pettis,	85,000

Both exhibits were brought together for the state fair which closed the fair season.

Dairy Extension: The dairy industry of Missouri is relatively new. Its development during the last few years has been very rapid. In this development Missouri farmers have needed a great deal of assistance. In order to supply this help, the College of Agriculture has appointed a man who gives his entire time to dairy extension service. Under his direction the college has prepared plans for silo construction which have been widely distributed at a nominal cost. Personal assistance and direction has been given in the erection of a number of silos. The work of conducting official tests of dairy cows is well under way and is showing results in the introduction of more high class and pure bred dairy cattle. During the last fiscal year the College of Agriculture tested dairy cows in eleven herds.

Dairy Records: A herd of four cows comprising three Jerseys and one Holstein, owned by the Missouri College of Agriculture, have produced since their first calving more than 170 tons of milk containing butter fat enough to make more than 8½ tons of butter. This amount of milk was 378 times the combined weight of the four animals. These four cows have earned \$6744.50 above the cost of feed and care. Their detailed record follows:

	Grace Briggs.	Alpheia Elf Fourth.	Missouri Ramposa.	Princess Salatine Carlotta.
Breed.....	Jersey	Jersey	Jersey	Holstein
Age.....	16	15	14	12
Lactation periods.....	12	12	10	9
Pounds milk produced...	101,256	68,054	77,268	93,864
Pounds butter produced...	5,335	36,367	4,132	3,808
Best year milk record....	13,322	13,329	12,729	18,405
Best year butter record...	736	701	746	721

These records show what scientific methods of breeding and feeding can accomplish. All these cows were bred on the college farm. That they were economically fed is demonstrated by the large net profit secured. Missouri farmers are being taught the methods by which these cows were bred and fed.

Fertilizer Control: The farmers of Missouri are using large quantities of commercial fertilizers. Under the efficient inspection



A CHAMPION AND A SIRE OF CHAMPIONS

Honorable (54635) 41371, a Percheron stallion owned by the University of Missouri, is a fine type of draft horse perfection.

service conducted by the College of Agriculture all fertilizer sold in the state is kept up to the standard claimed for it by the manufacturer. Any farmer in the state who buys a fertilizer knows that he is buying what the manufacturer claims for it. All companies who sell fertilizers in the state must register their brands with the College of Agriculture stating the composition of the fertilizer offered for sale, and secure from the college license tags certifying to the fact of registration. Any fertilizer sold in the state which does not bear the tag of the College of Agriculture is being sold in violation of the law and the farmer purchasing such fertilizer has no assurance that it is up to the standard claimed for it by the manufacturer.

During the last year more than 700 samples were collected by inspectors from the college and analyzed by the experiment station. Report of this inspection is given in Bulletin 116 which is free to all farmers of Missouri.

Live Stock Winnings: At the Missouri State Fair ten head of fat steers exhibited by the Missouri College of Agriculture won the

following prizes: Grand champion of all breeds and ages, champion Shorthorn, champion Aberdeen Angus, champion Galloway, and twelve first prizes. Every steer in the herd was a first prize winner in its class.

At the American Royal Live Stock Show, Kansas City, the same herd won one championship, seven first prizes and four other prizes ranging from second to fifth prizes. At the International Live Stock Show, Chicago, the following prizes were won: One championship, five first prizes, four second prizes, and fourteen prizes below second prize.

Three of these steers, two Herefords and one Shorthorn, were bred by the College of Agriculture; the others were purchased as calves so that their development and final show-ring fitting was under college direction.

Nursery Inspection: This work has started with the promise of great good to orchard and nursery interests of the state. Although nursery inspection did not start until the spring of 1913, 125 nurseries were inspected in forty-five different counties. Of this number, twenty-three of the smaller nurseries which had not been having inspection regularly were found to be infested with San Jose scale and required special treatment before certificates could be issued. The total amount of nursery stock inspected was nearly 3,000 acres. In every state there are a great many firms dealing in nursery stock who do not grow the stock themselves. The law requires such dealers to hold dealer's certificates. Seventy-eight of these certificates have been issued during the first year. In order to know the source of all imported stock and to make sure that it is properly certified, the Missouri law requires all outside nurserymen desiring to ship stock into Missouri to secure a state permit. One hundred and twenty-one nurseries from twenty-one states have applied for these permits. In order to completely safe-guard the legitimate nursery business in the state, it is required of all agents and salesmen that they, too, secure a state permit. Three hundred and seventy-seven sellers of nursery stock have complied with this provision of the law.

In order to prevent the introduction of insect pests and plant diseases from foreign countries, it has been made the duty of the state nursery inspector to inspect all foreign shipments of nursery stock. Nearly 500 cases of stock have been inspected during the past year.

Boys' Corn Growing Contest: This contest is organized under a special appropriation to the College of Agriculture which is expended by and with the advice of the Missouri Corn Growers' Association. The purpose of the contest is to interest Missouri farm boys in the problem of growing larger crops of corn by teaching them right methods of seed selection and seed testing as well as proper methods

of cultivation. The average annual enrollment for this work is about 3,000 Missouri boys.

Short Course for Boys: During the session of the Farmers' Short Course in January, 1914, a special short course for boys less than 16 years old was held. Fifty-nine boys from six counties attended this short course. Johnson County led with 22 boys; Buchanan County was second with 15, while Marion County sent 12. Adair, Pettis, and Dade Counties, sent 10 boys altogether. The average total cost for each boy during his stay in Columbia was \$4 for the four days. A special instructional program for the Boys' Short Course was carried out. This program included work in judging live stock, in soil studies, and orchard practice. A live stock judging contest and a corn judging contest were the two features of the course. Valuable prizes and medals were given to the winners in these contests.

Boys' and Girls' Club Work: On March 1, 1914, the College of Agriculture started its first work in the organization of boys' and girls' clubs. During the spring nearly 75 clubs were organized with a membership of more than 1,000 boys and girls between the ages of 10 and 18 years. This work is carried on directly with county superintendents and farm advisers in those counties where there are county farm advisers. The plan is to connect the club work closely with the rural schools of the state. Only two lines of work have been attempted thus far: Corn growing for the boys and tomato growing and canning for the girls. With the opening of the country schools in the fall of 1914, several other lines of work will be started.

Correspondence: During the last fiscal year 65,138 letters were written by the various departments of the College of Agriculture. A small proportion of these letters related to questions of administration. The balance were written in reply to requests for information concerning farm practices, care of live stock, orchard management, etc.

Correspondence Courses: Courses in agriculture are now being offered by correspondence. The administration of this phase of extension teaching in agriculture is in charge of the Secretary of the University Extension Division. Agriculture taught by correspondence is credited in the Two-Year Winter Course but not in the four-year college course.

SOME OF THE POSITIONS HELD BY GRADUATES OF THE MISSOURI COLLEGE OF AGRICULTURE

President, Kansas State Agricultural College.

Dean of New York State College of Agriculture, at Cornell, after August 1, 1914.

Assistant Secretary of Agriculture, United States Department of Agriculture.

Professor in Agronomy, Delaware Agricultural College.

Acting Director, United States Bureau of Agriculture, Manila, P. I.

Director of Agricultural Education for Argentine.

Director of Experiment Station, Mayaguez, Porto Rico.

Dean of the Louisiana College of Agriculture and Director of the Experiment Station.

Chief in Nutrition, Ohio Experiment Station.

Dean of University of Arkansas (now retired), Independence, Mo.

Professor of Agricultural Chemistry, University of Oklahoma.

Professor of Horticulture and Botany, Oklahoma Agricultural and Mechanical College, Stillwater, Oklahoma.

Professor of Comparative Medicine, West Raleigh, North Carolina.

Professor of Animal Husbandry, University of Florida, Gainesville, Florida.

Professor of Pomological Research, Cornell University, Ithaca, New York.

Professor of Animal Husbandry, Manhattan, Kansas.

Professor of Plant Pathology, Fayetteville, Arkansas.

Professor of Agronomy, University of Idaho, Moscow, Idaho.

Professor of Animal Husbandry, Alabama Polytechnic Institute.

Professor of Soils, West Raleigh, North Carolina.

Professor of Dairying, Kansas State Agricultural College, Manhattan, Kansas.

Professor of Farm Crops, Ames, Iowa.

Professor of Animal Husbandry and Dairying, Fayetteville, Arkansas.

Professor of Agronomy, North Dakota Agricultural College.

Professor of Animal Husbandry, University of Tennessee, Knoxville, Tennessee.

Assistant Professor of Plant Physiology, Cornell University, Ithaca, New York.

Associate Professor of Dairy Husbandry, Minnesota College of Agriculture.

Associate Professor in Animal Husbandry, Urbana, Illinois.

Assistant Professor of Horticulture, Madison, Wisconsin.

- Assistant Professor of Veterinary Science, Michigan Agricultural College.
- Assistant Professor of Agricultural Education, Texas Agricultural College.
- Assistant Professor of Dairy Husbandry, Nebraska Agricultural College.
- Assistant Horticulturist, Purdue University, Lafayette, Indiana.
- Assistant State Plant Pathologist, New Brunswick, New Jersey.
- Assistant in Chemistry, Oklahoma Agricultural College.
- Assistant in Agronomy, Ft. Collins, Colorado.
- University Dairyman, Moscow, Idaho.
- Instructor in Horticulture, Pullman, Washington.
- Instructor in Botany, Pennsylvania State College.
- Instructor in Dairy Husbandry, Connecticut Agricultural College, Storrs, Connecticut.
- Instructor in Animal Husbandry, State College, Pennsylvania.
- Instructor in Dairy Husbandry, College Station, Texas.
- Instructor in Dairy Husbandry, State College, Pennsylvania.
- Instructor in Dairy Husbandry, Tennessee Agricultural College.
- Instructor in Animal Husbandry, Texas Agricultural and Mechanical College, College Station, Texas.
- Poultryman, New Hampshire Agricultural College.
- Instructor in Pomology, Massachusetts Agricultural College.
- Instructor in Pomology, Cornell University, Ithaca, New York.
- Instructor in Animal Husbandry, Colorado Agricultural College, Ft. Collins, Colorado.
- Instructor in Animal Husbandry, State College, Pennsylvania.
- Live Stock Assistant, Purdue University, Lafayette, Indiana.
- Assistant State Entomologist, Albany, New York.
- In Charge of Agricultural Investigations, Cairo, Egypt.
- Junior Dairyman, Bureau of Animal Industry, Nashville, Tennessee.
- Dairyman, United States Department of Agriculture, Greenville, South Carolina.
- Scientific Investigator, Department of Agriculture, Washington, District of Columbia.
- United States Government Farm Manager, Denison, Texas.
- Farm Management Investigations, United States Department of Agriculture, Washington, District of Columbia.
- Bureau of Soils, United States Department of Agriculture, Washington, District of Columbia.
- Farm Management Field Investigations, District Manager for Southern Michigan, United States Department of Agriculture, Washington, District of Columbia.
- Farm Management Field Work, Jacksonville, Illinois.
- Government Service, Jacksonville, Illinois.
- United States Soil Survey, Mississippi County, Arkansas.

United States Department Experimental Dairy, Washington, District of Columbia.
United States Department of Soils, Washington, District of Columbia.
United States Soils Survey, Demorest, Georgia.
Experimental Agronomy, University of Nebraska.
Government Soils Survey, Grant City, Missouri.
Government Forestry Service, Ely, Minnesota.
Government Forestry Service, Flagstaff, Arizona.
County Farm Adviser, Cape Girardeau County, Jackson, Missouri.
County Farm Adviser, Jackson County, Independence, Missouri.
County Farm Adviser, Audrain County, Mexico, Missouri.
County Farm Adviser, Johnson County, Missouri.
County Farm Adviser, Greene County, Missouri.
County Farm Adviser, St. Francois County, Missouri.
County Farm Adviser, Hamilton County, Indiana.
County Farm Adviser, Will County, Pontiac, Illinois.
With Agricultural Bureau, Guilford County, North Carolina.
Associate Editor, Orange Judd Farmer, Chicago, Illinois.
Editor, Farmer and Stockman, Kansas City, Missouri.
Live Stock Editor, Missouri Ruralist, Kansas City, Missouri.
Live Stock Editor, Missouri Farmer, Columbia, Missouri.
Business Manager, Daily Record, Kansas City, Missouri.
Agricultural Director, Idaho Industrial Institute, Weiser, Idaho.
Superintendent of Public Schools, Columbia, Missouri.
Teacher of Agriculture, Cape Girardeau Normal, Missouri.
Teacher of Agriculture, Illinois College, Jacksonville, Illinois.
Teacher of Agriculture, Central High School, Memphis, Tennessee.
Teacher of Horticulture, Tonkawa, Oklahoma.
Teacher of Agriculture, Bird Island, Minnesota.
Teacher of Agriculture, Fairmount Academy, Fairmount, Indiana.
Teacher of Agriculture, Joplin High School, Missouri.
High School Teacher, Maple Lake, Minnesota.
High School Teacher, Slater, Missouri.
High School Teacher, Kenton, Tennessee.
High School Teacher, St. Louis, Missouri.
High School Teacher, Fredericksburg, Virginia.
High School Teacher, Kirkwood, Missouri.
High School Teacher, Philadelphia, Pennsylvania.
High School Teacher, Alberquerque, New Mexico.
Lawyer, Columbia, Missouri.
Farmer's Institute Lecturer, Columbia, Missouri.
Superintendent Training School Farm, Boonville, Missouri.
Government Farmer, Indian Service, Yuma, Arizona.
Agricultural Expert, United States Department of Agriculture, Ardmore, South Dakota.

With Civil Service Commission, Chicago, Illinois.
Government Clerk, St. Louis, Missouri.
Fertilizer Chemist, Swift and Company, Kansas City, Missouri.
Supervisor of Experimental Farms for the American Agricultural Chemical Company, St. Louis, Missouri.
Superintendent of Fertilizer Salesmen, Swift and Company, St. Joseph, Missouri.
Fertilizer Salesman, Swift and Company, East St. Louis, Illinois.
With Bowman Dairy Company, Chicago, Illinois.
Traveling Salesman, St. Louis, Missouri.
Carpenter and Builder, Bernardo, California.
Manufacturer of Hog Cholera Serum, Perryville, Missouri.
Manufacturer of Hog Cholera Serum, Rich Hill, Missouri.
Veterinarian, Bozeman, Montana.
Sixty farmers and managers of live stock and general farms in Missouri.
Eight farmers and managers of live stock and general farms in states other than Missouri.
Ten dairy farmers and managers of dairy farms.
Herdsman in charge of the largest dairy herd in America, Falfurrias, Texas.
Eight fruit growers and managers of fruit farms.
Two plantation managers in the South.
Estate Manager, Long Island, New York.

POSITIONS IN THE UNIVERSITY OF MISSOURI HELD BY GRADUATES OF THE COLLEGE OF AGRICULTURE

Professor of Veterinary Science.
Professor of Horticulture.
Professor of Farm Management.
Professor of Farm Crops.
Two Assistant Professors of Farm Crops.
Assistant Professor of Agronomy.
Assistant Professor of Rural Education.
Two Assistant Professors of Animal Husbandry.
Assistant Professor of Dairy Husbandry.
Assistant Professor of Agricultural Chemistry.
Assistant Professor of Farm Management.
Assistant Professor of Dairy Chemistry.
Two Assistant Chemists in the Agricultural Experiment Station.
Instructor in Dairy Husbandry.
Instructor in Soils.
Instructor in Animal Husbandry.

Two Assistants in Botany.
Two Assistants in Farm Management.
Three Assistants in Home Economics.
Three Assistants in Veterinary Science.
Two Assistants in Horticulture.
Two Assistants in Dairy Husbandry.
Assistant in Farm Crops.
Assistant in Animal Husbandry.
Assistant in Agricultural Chemistry.
Assistant in Soil Survey.
Assistant in Entomology.

THE FACULTY

ALBERT ROSS HILL, A. B., Ph. D., LL. D.,
President of the University.

FREDERICK BLACKMAR MUMFORD, B. S., M. S.,
Professor of Animal Husbandry, Dean of the Faculty, and
Director of the Agricultural Experiment Station.

EDWIN BAYER BRANSON, A. B., A. M., Ph. D.,
Professor of Geology and Mineralogy.

CHESTER LELAND BREWER,
Professor of Physical Education.

WILLIAM GEORGE BROWN, B. S., Ph. D.,
Professor of Technical Chemistry.

SIDNEY CALVERT, B. S., A. M.,
Professor of Organic Chemistry.

JOHN WALDO CONNAWAY, D. V. S., M. D.,
Professor of Veterinary and Comparative Medicine, and Vet-
erinarian to the Agricultural Experiment Station.

WINTERTOWN CONWAY CURTIS, A. B., A. M., Ph. D.,
Professor of Zoology.

DUANE HOWARD DOANE, B. S. in Agr., M. S.,
Professor of Farm Management, and State Leader of Farm
Management Investigations.

FREDERICK DUNLAP, F. E.,
Professor of Forestry.

LIEUTENANT CHARLES McH. EBY,
Professor of Military Science and Tactics.

CLARENCE HENRY ECKLES, B. S. in Agr., M. S.,
Professor of Dairy Husbandry, and in charge of the Dairy
Department of the Agricultural Experiment Station.

WALTER LAFAYETTE HOWARD, B. Agr., B. S., M. S., Ph. D.,
Professor of Horticulture.

CLAUDE BURTON HUTCHISON, B. S. in Agr., M. S. in Agr.,
Professor of Farm Crops.

GEORGE LEFEVRE, A. B., Ph. D.,
Professor of Zoology.

- MERRITT FINLEY MILLER, B. S. in Agr., M. S. A.,
Professor of Soils.
- GEORGE MATTHEW REED, A. B., A. M., Ph. D.,
Professor of Botany.
- HERMAN SCHLUNDT, B. S., M. S., Ph. D.,
Professor of Physical Chemistry.
- EDWIN A. TROWBRIDGE, B. S. in Agr.,
Professor of Animal Husbandry.
- PERRY FOX TROWBRIDGE, Ph. B., A. M., Ph. D.,
Professor of Agricultural Chemistry, and Chemist to the Agricultural Experiment Station.
- JOHN CHARLES WHITTEN, B. S., M. S., Ph. D.,
Professor of Horticulture, and Horticulturalist to the Agricultural Experiment Station.
- HARRY ORSON ALLISON, M. S.,
Associate Professor of Animal Husbandry.
- ELIAS JUDAH DURAND, A. B., D. Sc.,
Associate Professor of Botany.
- IRA S. GRIFFITH, A. B.,
Associate Professor of Manual Arts.
- HARRY LAVERNE KEMPSTER, B. S. A.,
Associate Professor of Poultry Husbandry.
- ARTHUR J. MEYER,
Assistant to the Dean and Director, and Superintendent of Short Courses.
- RAYMOND DURBIN MILLER, A. B., Ph. D.,
Associate Professor of English.
- LEE SELDON BACKUS, D. V. M.,
Assistant Professor of Veterinary Science.
- LUCIUS FRANKLIN CHILDERS, B. S. A., M. S.,
Assistant Professor of Agronomy.
- AMY LOUISE DANIELS, B. S. in Ed., A. M., Ph. D.,
Assistant Professor of Home Economics.
- THOMAS RANKIN DOUGLASS, B. S. in Agr.,
Assistant Professor of Farm Crops.
- RICHARD HUFF EMBERSON, B. S.,
Assistant Professor of Rural Education.
- JAMES ANDREW GIBSON, A. B., A. M.,
Assistant Professor of Chemistry.

- JOHN B. GINGERY, D. V. M.,
Assistant Professor of Veterinary Medicine.
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Assistant Professor of Rural Economics.
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Assistant Professor of Animal Husbandry.
- JAY COURTLAND HACKLEMAN, B. S. in Agr., M. A.,
Assistant Professor of Farm Crops.
- LEONARD HASEMAN, A. B., A. M., Ph. D.,
Assistant Professor of Entomology, Entomologist to the Agricultural Experiment Station, and State Nursery Inspector.
- OLIVER RAY JOHNSON, B. S., A. M.,
Assistant Professor of Farm Management.
- HORACE FAIRCHILD MAJOR, B. S. in Agr.,
Assistant Professor of Landscape Gardening.
- CHARLES ROBERT MOULTON, B. S., M. S. in Agr., Ph. D.,
Assistant Professor of Agricultural Chemistry.
- LEROY SHELDON PALMER, Ch. E., A. M., Ph. D.,
Assistant Professor of Dairy Chemistry and Assistant Chemist to the Agricultural Experiment Station.
- *GEORGE REEDER, Section Director, U. S. W. B.,
Lecturer on Meteorology and Climatology.
- LORIN GEORGE RINKLE, B. S., M. S. in Agr.,
Assistant Professor of Dairy Husbandry.
- LOUISE STANLEY, B. S., A. M., Ph. D.,
Assistant Professor of Home Economics.
- LUTHER ABRAHAM WEAVER, B. S. in Agr.,
Assistant Professor of Animal Husbandry.
- PHILIP MARTIN BRANDT, B. S. in Agr., A. M.,
Instructor in Dairy Husbandry.
- PERCY LEIGH GAINNEY, B. S. A., A. M.,
Instructor in Botany.
- ROBERT R. HUDELSON, B. S. in Agr.,
Instructor in Soils.
- CARLOS AMIE LeCLAIR, B. S. in Agr., M. A.,
Instructor in Soils.

*In the service of the U. S. Department of Agriculture.

- ERNEST CECIL PEGG, A. B., M. F.,
Instructor in Forestry.
- SILOS TRUMAN SIMPSON, B. S. in Agr.,
Instructor in Animal Husbandry.
- RUTH BEATTIE, A. B.,
Assistant in Botany.
- RALPH STEPHEN BESSE, B. S. in Agr.,
Assistant in Farm Management.
- FRANKLIN LEE BENTLEY, B. S. in Agr.,
Assistant in Farm Crops and Assistant Secretary of the Missouri
Corn Growers' Association.
- CLARENCE EUGENE BRASHEAR, B. S. in Agr.,
Assistant in Animal Husbandry.
- NELLE CARTER, B. S. in H. E.,
Assistant in Home Economics.
- CLYDE E. DEARDORFF, B. S. in Agr.,
Assistant in Soil Survey.
- A. J. DURANT, B. S. in Agr.,
Research Assistant in Veterinary Science.
- ALBERT RAY EVANS, B. S. in Agr.,
Assistant in Farm Crops.
- WILLIAM EUPHRATES FOARD, B. S. in Agr.,
Assistant in Farm Management.
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- ELMER H. HUGHES, B. S. in Agr.,
Assistant in Animal Husbandry.
- *F. ZINN HUTTON, B. S. in Agr.,
Assistant in Soil Survey.
- M. A. RAYMOND KELLEY, B. S. in M. E., B. S. in A. E.,
Assistant in Agricultural Engineering.
- EDMUND W. KNOBEL, B. S. in Agr.,
Assistant in Soil Survey.

- HENRY H. KRUSEKOPF, B. S. in Agr.,
Assistant in Soil Survey.
- EMMA BEE MUNDY, A. B.,
Assistant in Botany.
- THOMAS CLEVELAND REED, B. S. in Agr.,
Assistant in Dairy Husbandry.
- WILLIAM MICHAEL REGAN, B. S. in Agr.,
Assistant in Dairy Husbandry.
- HELMAR ROSENTHAL, A. B.,
Assistant in Agricultural Chemistry.
- ESTILL RAPHAEL SPENCE, B. S. in Agr.,
Assistant in Veterinary Science.
- ORSINO CECIL SMITH, A. B.,
Assistant in Agricultural Chemistry.
- ASA CLAUDE STANTON, B. S. in Agr.,
Assistant in Dairy Husbandry.
- *A. T. SWEET, A. B.,
Assistant in Soil Survey.
- BOLESLAUS SZYMONIAK, B. S. in Agr.,
Assistant in Horticulture.
- THOMAS J. TALBERT, B. S. in Agr.,
Assistant in Entomology and Deputy Inspector of Nurseries.
- *B. W. TILLMAN, B. S. in Agr.,
Assistant in Soil Survey.
- TALMADGE THOMAS TUCKER, B. S. in Agr.,
Assistant in Veterinary Science.
- ELMER ELLSWORTH VANATTA, B. S. in Agr., M. S. in Agr.,
Assistant in Agricultural Chemistry.
- *EARL STEERE VANATTA, B. S. in Agr.,
Assistant in Soil Survey.
- WILLIAM ISAAC WATKINS, B. S. in Agr.,
Assistant in Soil Survey.
- CLEO CLAUDE WIGGANS, B. S. in Agr., A. M.,
Assistant in Horticulture.
- C. A. WEBSTER, B. S. in Agr.,
Assistant in Poultry Husbandry.

*In the service of the United States Department of Agriculture.

THE UNIVERSITY OF MISSOURI

The fundamental aim of the University of Missouri is the development of the highest and most efficient type of citizen. For the purpose of attaining its aim, the University furnishes ample facilities for liberal education and for thorough professional training. The University is a part of the public educational system of the state.

In the course of seventy-five years of development, new divisions of instruction have been organized in response to the needs of vocations followed by citizens of the state.

ORGANIZATION

The work of the University is now carried on in the following colleges and schools:

- College of Arts and Science
- College of Agriculture
- School of Education
- School of Law
- School of Medicine
- School of Engineering
- School of Mines and Metallurgy
- School of Journalism
- School of Commerce
- Graduate School
- Extension Division

All of these divisions are at Columbia with the exception of the School of Mines and Metallurgy, which is located at Rolla. In addition, emphasis is given particular lines of work by the establishment of minor divisions, the chief of which are the Agricultural Experiment Station, the Engineering Experiment Station, and the Missouri State Military School.

LOCATION

The University of Missouri is located at Columbia, a town situated half way between St. Louis and Kansas City near the center of the state. It is reached by the Wabash, and the Missouri, Kansas and Texas Railways. Columbia is a progressive and prosperous town, having doubled its population in the last few years. It has nearly twenty miles of paved streets.

Columbia may be characterized as a town of schools, homes and churches, with enough of industrialism to make it efficient. It offers the conveniences of a large city without the counter attractions. The student is a predominant factor in Columbia.

EQUIPMENT

The University grounds cover more than 800 acres. The main divisions are in the west campus, the east campus, Rollins Field for athletics, and the agricultural college farm.

The following University buildings are located at Columbia: Academic Hall; Laws Observatory; separate buildings for chemistry, physics, zoology and geology, law, engineering, manual arts, biology; two power houses; Medical Laboratory Building; Parker Memorial Hospital; Agricultural Building; Horticultural Building; Schweitzer Hall for Agricultural Chemistry; green houses; Live Stock Judging, Dairy, Farm Machinery, Poultry, and Veterinary Buildings, and the agricultural college farm barns and buildings; Switzler Hall, for the School of Journalism; Benton and Lathrop Halls, dormitories for men; Read and Sampson Halls, dormitories for women; Rothwell Gymnasium; the houses for the President of the University and the dean of the College of Agriculture; the High School, and the Elementary School Buildings used for practice schools in the School of Education; and the Gordon Hotel Building for home economics.

FOR FURTHER INFORMATION

Full information regarding the University is given in the catalogue which will be sent on request without charge. For this or special bulletins of the Graduate School, College of Arts and Science, College of Agriculture, School of Education, School of Law, School of Medicine, School of Engineering, School of Journalism, School of Commerce, and the Extension Division, write to

DEAN OF THE UNIVERSITY FACULTY,
University of Missouri,
Columbia, Missouri.

UNIVERSITY CALENDAR

AT COLUMBIA

1914

Summer Session

June 11	Thursday, registration
June 12	Friday, organization of classes
July 4	Saturday, holiday
August 6	Thursday, lectures close
August 7	Friday, examinations
August 8	Saturday, entrance examinations

First Semester

September 14, 15, 16..	Monday, Tuesday and Wednesday, entrance examinations and registration
September 17	Thursday, 8 a. m., class work in all divisions begins
September 17	Thursday, 10 a. m., opening convocation
October 1	Thursday, quarterly meeting of curators
November 3	Tuesday, election day, holiday
November 26	Thursday, Thanksgiving, holiday
December 15	Tuesday, annual meeting of curators
December 18	Friday, 4 p. m. to

1915

January 4	Monday, 8 a. m.	} Christmas holidays
January 23	Saturday to	
January 30	Saturday	} Mid-year examinations

Second Semester

January 28, 29, 30....	Thursday, Friday and Saturday, entrance examinations	
February 1, 2	Monday and Tuesday, registration, second semester	
February 3	Wednesday, 8 a. m., class work in all divisions begins	
February 4	Thursday, 10 a. m., opening convocation	
February 22	Monday, Washington's Birthday, holiday	
April 1	Thursday, quarterly meeting of curators	
April 1	Thursday, 4 p. m., to	} Easter holidays
April 7	Wednesday, 8 a. m.	
May 30	Sunday, baccalaureate address	
May 31, June 1	Monday and Tuesday, senior class exercises	
June 2	Wednesday, alumni day	
June 3	Thursday, commencement day	
June 3	Thursday, semiannual meeting of curators	
June 4	Friday, to	} Final examinations
June 11	Friday	

THE
UNIVERSITY OF MISSOURI
BULLETIN

VOLUME 15

Issued Semi-Monthly

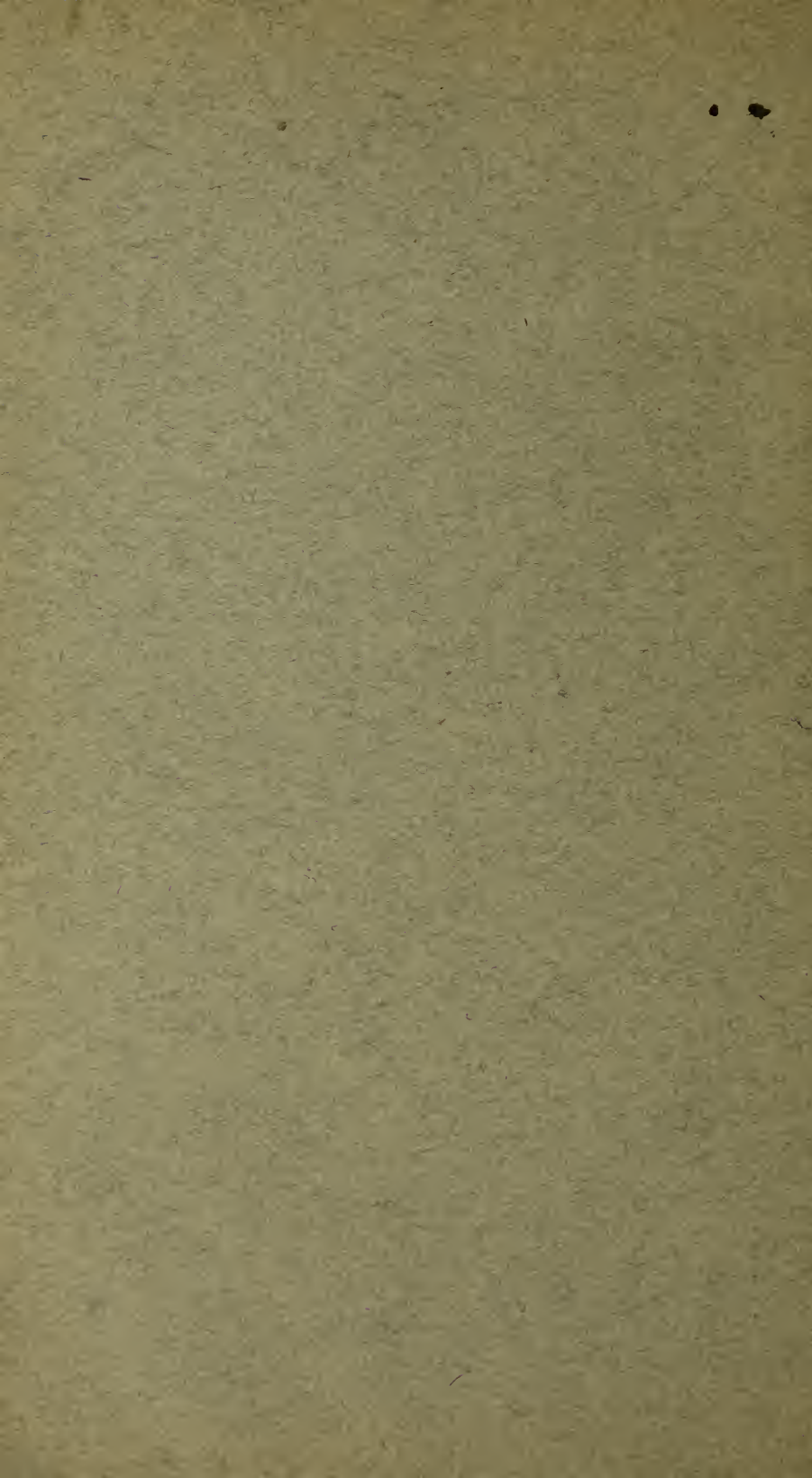
GENERAL SERIES

EDITED BY
HUGH J. MACKAY
University Publisher

The General Series of The University of Missouri Bulletin consists of the announcements of the various colleges and schools which make up the University. These announcements will be sent free upon request to the Dean of the University Faculty, Columbia, Missouri.

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THE UNIVERSITY OF MISSOURI BULLETIN

VOLUME 15 NUMBER 26

GENERAL SERIES

1914, No. 11

ANNOUNCEMENT
OF THE
TWO YEAR WINTER COURSE AND
OTHER SHORT COURSES
COLLEGE OF AGRICULTURE
1914-15

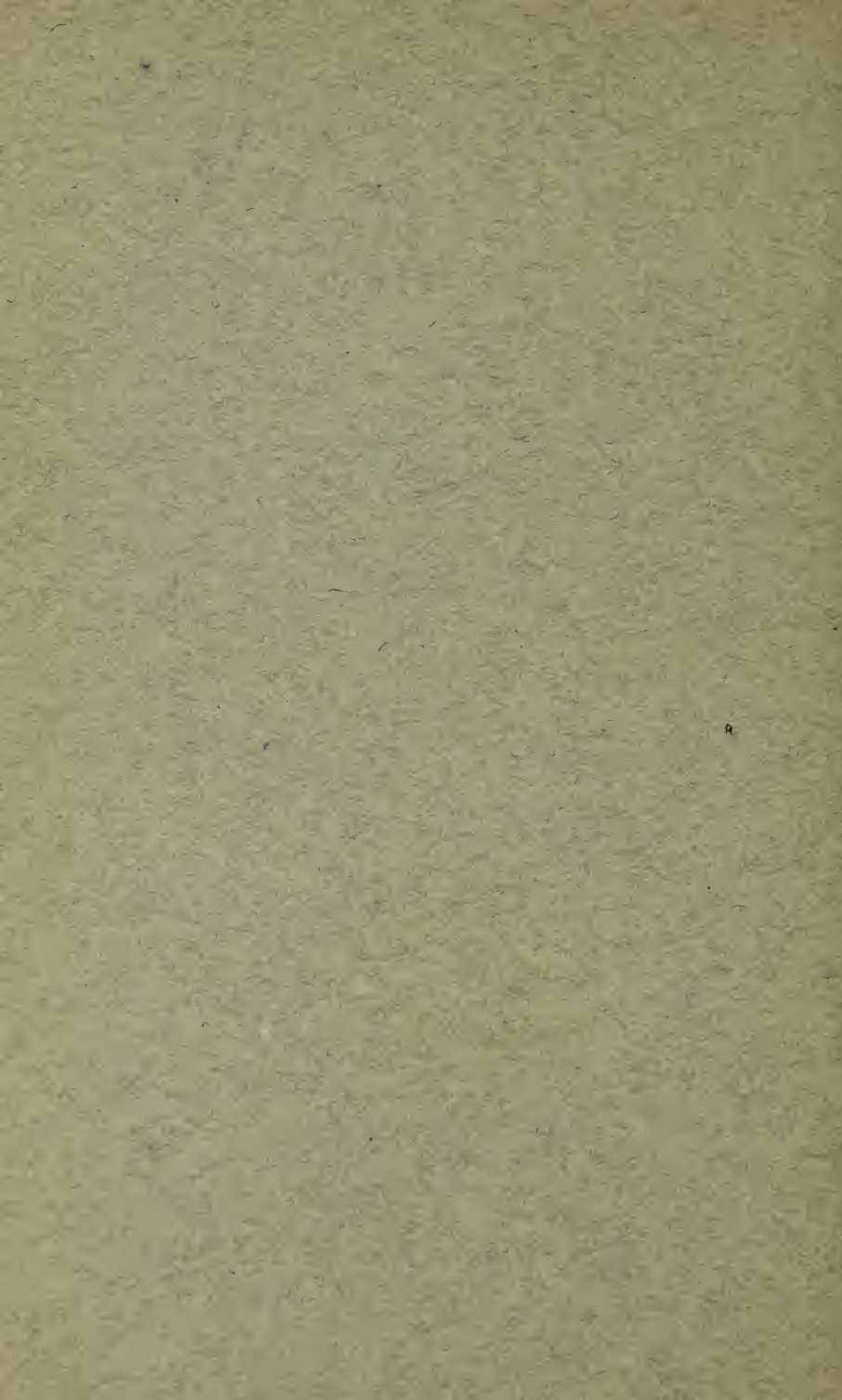


UNIVERSITY OF MISSOURI
COLUMBIA, MISSOURI
September, 1914

UNIVERSITY OF ILLINOIS

OCT 17 1914

PRESIDENT'S OFFICE



THE UNIVERSITY OF MISSOURI BULLETIN

VOLUME 15 NUMBER 26

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ANNOUNCEMENT

OF THE

TWO YEAR WINTER COURSE AND
OTHER SHORT COURSES

COLLEGE OF AGRICULTURE

1914-15



UNIVERSITY OF MISSOURI
COLUMBIA, MISSOURI
September, 1914

IN THIS ANNOUNCEMENT—

On pages 5 to 21. The Two Year Winter Course in
Agriculture.

On pages 22 to 26. The Short Course for Women.

On pages 27 to 28. The Short Course in Dairying.

On pages 29 to 30. The Special Poultry Course.

On pages 33 to 40. What the College of Agriculture
is Doing for Missouri.

GRADUATES OF THE TWO YEAR WINTER COURSE—THE CLASS OF 1914.



COMPLETED DECEMBER, 1913.

Top Row—M. B. North, Norborne, Mo.; L. P. Keller, Dresden, Mo.; O. M. Hagerman, Wayland, Mo.

Bottom Row—J. H. Ketcham, Atlanta, Mo.; R. C. Thompson, Jefferson City, Mo.; Cecil Shue, Braymer, Mo.



D. B. Groves
Class President



COMPLETED FEBRUARY, 1914.

Top Row (Left to Right)—L. G. Pickens, Carthage, Mo.; M. A. Gregory, Marling, Mo.; T. D. Morse, Neosho, Mo.; R. H. Morrow, Garden City, Mo.; *G. O. Stine, Ozark, Mo.; E. H. Autenreith, Bluffton, Mo.; W. T. Buescher, Labadie, Mo.; R. W. King, Hopkins, Mo.; E. F. Pentecost, Walker, Mo.; F. M. Rickman, Elk Springs, Mo.; C. F. Clancy, Union Star, Mo.; O. G. Wich, Quincy, Illinois; J. F. Estes, Polo, Mo.

Second Row—*F. J. Pittrick, Brazito, Mo.; B. W. Stuart, Rushville, Mo.; H. L. Peabody, Smithton, Mo.; E. T. Johnston, Lathrop, Mo.; H. A. Quaintance, Lee's Summit, Mo.; Charles McPherson, Columbia, Mo.; Chris. Kuckuk, Kansas City, Mo.; C. W. Rose, Carrollton, Mo.; C. H. Johnson, Bronaugh, Mo.; R. B. Woodward, LaMonte, Mo.; B. M. Whitener, Swan Lake, Ark.; R. F. Pickett, Stewartsville, Mo.; S. T. Litton, Lineville, Iowa.

Bottom Row—*S. V. Monsees, Smithton, Mo.; J. C. Weidler, Mexico, Mo.; W. T. Hockenberry, Bunceton, Mo.; J. F. Briscoe, Center, Mo.; Louis Hausmann, Labadie, Mo.; Geo. Fichter, Hughesville, Mo.; C. C. Reno, Pattonsburg, Mo.; B. Y. Edelen, Pleasant Hill, Mo.; S. H. Steenrod, Lockwood, Mo.; A. E. Daniel, McFall, Mo.; E. I. Donaldson, Corso, Mo.; J. B. Pile, Macon, Mo.; *L. G. Morse, Neosho, Mo.

*Requirements for certificate not fully satisfied.

THE TWO YEAR WINTER COURSE IN AGRICULTURE

(Short Course)

Seventeen years ago the Short Course in Agriculture was established by the Missouri College of Agriculture. Since then 1880 students have taken advantage of the opportunity offered by this practical course. Its influence has been state-wide. Every county in Missouri, except three, has sent students to the Short Course. Young men in other states have seen the splendid opportunity afforded by the Short Course at the Missouri College of Agriculture and they have come from many states to share in the good things which this course offers.

The Two Year Winter Course in Agriculture is a practical course for practical farmers. It is especially arranged to meet the needs of the man who wants to farm on a business basis,—make money, live comfortably, and be an active worker for the community in which he lives. Wherever possible the teaching is done by actually having students do the work instead of merely telling them how it ought to be done.

It trains for successful farming.

The Two Year Winter Course teaches:

How to raise larger crops with less labor, and better live stock with less expense;

How to select and care for seed corn and other grains so that, instead of "running out" they will become better from year to year;

How to handle soils so there will be no waste of soil moisture or fertility;

How to rotate crops and what crops to grow so that the farm will increase in fertility year after year;

How to apply commercial fertilizers and handle barnyard manure for best results;

How to plan farm buildings with proper regard for ventilation, light, heat, and cleanliness;

How to operate all kinds of farm machinery including gasoline engines;

How to select and judge all classes and breeds of cattle, horses, sheep, hogs and poultry;

How to figure balanced rations for farm stock and combine feeds so as to secure the greatest gains at lowest cost;

How to apply the principles of breeding so as to bring about improvement in all kinds of live stock;

How to manage a stock farm so as to assure generous returns for investment and labor;

- How to recognize and successfully combat those insect pests that endanger health and destroy farm crops;
- How to care for sick animals and perform simple surgical operations;
- How to make post-mortem examinations, vaccinate against black leg, test for tuberculosis, immunize against hog cholera;
- How to propagate trees and shrubs by grafting and budding;
- How to manage hotbeds and care for the home vegetable garden;
- How to plant, cultivate, prune, and spray fruit trees as well as how to gather, pack, and market the fruit;
- How to lay out and care for the home grounds so as to make them at once attractive and convenient;
- How to classify soils and adapt cropping systems to the various soil types;
- How to care for edged tools and do all ordinary carpentry and blacksmithing with special reference to work along lines which are particularly useful on the farm;
- How to breed, feed, and manage poultry; operate incubators and brooders; and build good, useful poultry houses;
- How to organize farmers' clubs and secure social and business co-operation between people in the country;
- How to operate cream separators, test milk for butter fat, make individual tests of dairy cows, handle milk and cream either for direct sale or to make up into butter;
- How to select high producing dairy cows and how to feed and care for them in order to get the best returns;
- How to feed and care for dairy calves;
- How to manage a farm on a business basis and keep an accurate record of all matters pertaining to the management of a farm.

A GOOD INVESTMENT

Men who have completed the work of the Two Year Winter Course in Agriculture have had their earning capacity increased fifty to five hundred dollars per year. Thus, it is seen that the money expended in taking the Short Course is really invested at from twenty to two hundred fifty per cent per annum. From a dividend paying standpoint, there are few investments open to young men in Missouri which can in any way compare with this.

Whether a man returns to his own or to his father's farm, or whether he enters the employ of another, the Short Course will prove equally valuable. Year by year the College receives an increasing number of inquiries for students to work on farms at wages materially higher than are paid to untrained men. The demand for trained farm managers is steadily growing. The services of men who farm with their heads as well as their hands are being eagerly sought for. Any wide-awake young

man may place himself in a position to take advantage of these opportunities by entering the Two Year Winter Course and completing its requirements in a satisfactory manner.

WHO MAY ATTEND

The two year winter course is intended primarily for students who have not completed a high school. There are no examinations given to enter this course. The only requirement is that a student must be sixteen years of age or older. Experience in farm work is of great value in helping a student to get the most out of the work. Men of mature years who have had the responsibility of managing a farm will find the course of great and lasting value. Among the most enthusiastic students who have taken the course and who give it their hearty endorsement are some of the large landowners and farmers of Missouri.

A student should have the equivalent of a common school education. However, this is not absolutely necessary and mature men of good average



THE UNIVERSITY OF MISSOURI 1913 SHOW HERD

Winners of one grand-championship, five championships, twenty-four first prizes, five second prizes, six third prizes, eight fourth prizes and three prizes below the rank of fourth at three leading live stock shows: the Missouri State Fair at Sedalia; the Royal Live Stock Show at Kansas City and the International Live Stock Show at Chicago.

ability who are willing to work hard will get along very well with even less preparation than is afforded by the common schools.

High school graduates and even college graduates who lack the practical facts of scientific agriculture find in this course the information they seek. The work is so elastic that men with advanced preparation are able to occupy their time as fully as the men who come without the preparation of the high school, but with the practical preparation of the farm. As a general rule, students who have completed the course in a high school are advised to attend the four year course in preference to the short course.

The course is open to both men and women.

FEES AND EXPENSES

The cost of four terms including board, room, books, fees, and other necessary expenses need not exceed \$220. This is an average cost of \$55 a term. Each student must pay an incidental fee of \$5 each term. Small laboratory fees are charged in veterinary science, dairy husbandry, farm carpentry, black-smithing, and grain judging. Books cost about \$9 a term. A student should bring at least \$25.00 with him when he comes to Columbia to start the course.

The following textbooks are required in the Two Year Winter Course:

Principles and Practice of Poultry Culture—Robinson.....	\$2.50
Judging Live Stock—Craig.....	1.50
Types and Breeds of Farm Animals—Plumb.....	2.00
Feeds and Feeding—Henry.....	2.25
Breeding Farm Animals—Marshall.....	1.50
Dairy Cattle and Milk Production—Eckles.....	1.60
Modern Methods of Testing Milk and Milk Products—Van Slyke.....	1.00
Farm Crops—Wilson and Marburton.....	1.50
Bailey's Prin. of Fruit Growing.....	1.25
Vegetable Gardening—Watts.....	1.75
Soils and Soil Fertility—Whitson & Walster.....	1.25
Agricultural Engineering—Davidson.....	1.50
Farm Management—Warren.....	1.75

Only part of these books are bought each term. Some of them are used in two or more subjects. In addition to the textbooks, a student is required to buy a few notebooks, pencils, pens, etc. The cost of such miscellaneous items is very small.

ROOM AND BOARD

The University has two men's dormitories. Most of the rooms in these places are taken by regular term students so that short course men

largely room in private residences. The usual price for a room is from \$1 to \$1.50 a week. The University Commons provides board at actual cost. Those students who eat in the cafeteria part pay according to the articles of food ordered. The Commons also supplies table board. The cost of private room and board varies from \$4 to \$5 a week.

The University Y. M. C. A. The Young Men's Christian Association has arranged to help all short course students to find good places to room and board. The town is thoroughly canvassed and every available rooming and boarding place is listed, together with prices. These lists are placed at the disposal of short course students when they reach Columbia.

There is a dormitory for men in the Y. M. C. A. Building. There is usually room for a few short course men in this dormitory.

The Y. M. C. A. provides a social center for young men in the Two Year Winter Course. The building has clubrooms, parlors, reading rooms, swimming pool, bowling alley, a pool room, and other features attractive to young men.

The association conducts Bible classes and religious meetings. Sunday morning meetings conducted by the Y. M. C. A. have proven one of the most attractive features in the course and have been attended during the past year by every active short course student.

WORKING ONE'S WAY THROUGH THE SHORT COURSE

Students are advised not to try to work their way through the short course. The work is so arranged that every student needs all of his time for study and classroom work. The regular price which students receive for outside work is fifteen cents an hour. Any man in the short course can make his time worth vastly more than this by spending it in study. One summer's work on the farm will enable a young man to save enough to pay his expenses in the short course the following winter. Men who desire to take the short course, but who have not the means, are advised to work on a good farm for one year, then come to Columbia prepared to put in full time in study and classroom work. The term is too short and the opportunity too rare to spend any time in outside work.

Moreover, it is difficult for short course students to obtain employment, as most of the best positions are taken by long course men who are on the ground earlier and therefore have the first opportunity at all openings which have any promise of permanency or regularity of employment. The Y. M. C. A. conducts an employment bureau and prospective short course men who must earn at least a part of their way are advised to apply early to this bureau, where some assistance may be given.



A GROUP OF COLLEGE PRIZE BARROWS

An object lesson for students in right breeding, feeding and management of swine.

CERTIFICATE OF GRADUATION

In order that a student may receive a certificate of graduation from the Two Year Winter Course he must satisfactorily complete ninety-six units of work. Of this number sixty-nine units are required. (See course of study, p. 11.) The other subjects needed to complete the requirement are selected by the student from the list of electives given on p. 11.

A unit is the equivalent of one classroom exercise a week throughout a term of seven weeks. Thus a class which meets three times a week gives a student three units credit toward a certificate. A class exercise may be one or two hours in length, depending on the nature of the work.

The requirements for graduation cannot be met unless a student spends two full winters in the course. The four terms need not necessarily be taken in succession, but it is better that they should be. Neither is it necessary that a student should begin work with the opening of the fall term, but it will be somewhat to his advantage to do so.

There has been a steady increase in the size of the graduating class since 1911 when the first short course certificates were granted to a class of nine men. In 1912 this number increased to thirty-three. Last year the graduates from the Two Year Winter Course numbered forty-three. This is growth in the right direction. The value of the Two Year Winter Course will finally be measured in the main, not by the number of men who begin the course, but by the number who complete the entire course and receive certificates of graduation.

THE COURSE OF STUDY

The amount of required work in the Two Year Winter Course has been reduced and the number of electives increased. This enables students to select the subjects in which they are most vitally interested and gives a larger opportunity for specialization.

All the work is thoroughly practical. Much of the instruction is given by having students actually do the work under proper direction.

Following is the schedule of subjects:

First Year, First Term.—Cereal Crops and Grain Judging (6); Farm Dairying or Plant Propagation (4); Live Stock Judging (3); Feeding and Management of Live Stock (5); Farm Poultry Management (3); 1 Elective (3).

First Year, Second Term.—Prevention and Treatment of Animal Diseases (5); Farm Dairying or Plant Propagation (4); Soil Tillage (3); Animal Breeding (3); Live Stock Judging (3); 2 Electives (6).

Second Year, First Term.—Injurious and Helpful Insects (4); Infectious Diseases (3); Farm Accounts (5); Soil Fertility (3); 3 Electives (9).

Second Year, Second Term.—Farm Orchard and Garden Management (4); Forage Crops (4); Milk Production (3); Farm Construction Methods (4); 3 Electives (9).

Electives.—Farm Carpentry (3); Farm Forging (3); Advanced Woodwork (3); Advanced Forging (3); Parliamentary Practice (3); Landscape Gardening (3); Rural Economics (3); Commercial Orchardng (3); Breeds of Live Stock (3); Farm Machinery and Engines (3); Advanced Grain Judging (3); Farm Management (3); Farm Forestry Methods (3); Advanced Stock Judging (3); Farm Poultry Practice (3); Butchering and Curing of Meats (3).

Animal Husbandry

Mr. Mumford, Mr. Trowbridge, Mr. Allison, Mr. Weaver, Mr. Hackedorn, Mr. Hughes, Mr. Brashear.

1aw. Stock Judging. In this course, the score card will be studied with special reference to the scale of points adopted by the various breed associations. The purpose of the course together with 2aw, is to thoroughly familiarize students with the types of all our common breeds of stock. Score card work and competitive judging.

1bw. Stock Judging. A repetition of 1aw. Given in the second term for new students.



SHORT COURSE STUDENTS JUDGING MULES

Three days each week Short Course students are drilled in judging live stock of all classes.

2aw. **Breeds of Live Stock.** This course is given in connection with 1aw. It takes up the history, adaptability, feeding qualities and general utility of the leading breeds of live stock produced in this country.

3aw. **Feeding and Management of Live Stock.** A study of the composition, digestibility and relative feeding value of the various hays, forage, grains, mill feeds, and miscellaneous feeding stuffs; the preservation and preparation of coarse fodder; grinding, steaming and cooking food; feeding standards and the calculation of rations for the various classes of live stock. This subject also includes a consideration of shelter, feeding for growth or maintenance, breeding, equipment for handling properly, marketing, etc.

4bw. **Animal Breeding.** A course in the principles and methods necessary in the successful breeding and improvement of farm animals. While this consists of the fundamental principles of breeding it is particularly planned for the practical breeder, and those phases of the work are emphasized which appeal directly to the student engaged in the production of live stock on the farm.

6aw. **Stock Judging.** A further study of breeds of animals with special attention to their relative values for the production of meat, milk and wool or for draft and speed. This course includes a study of market

types and show ring classifications, along with a detailed consideration of differences between market and breed types. For first year students.

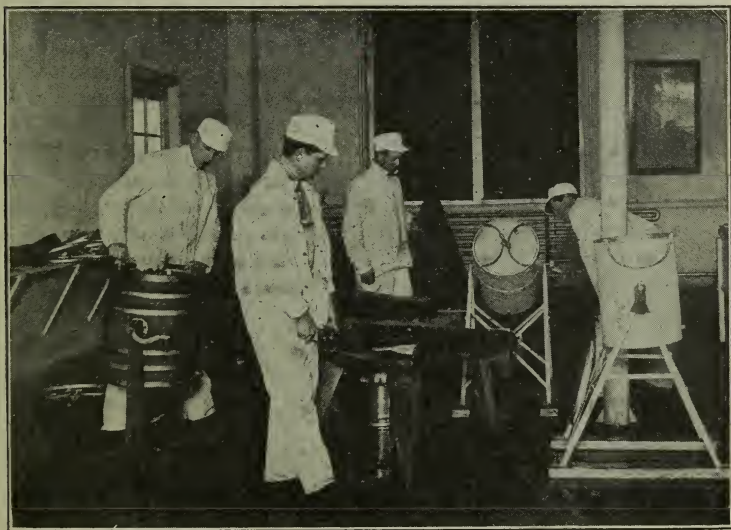
6bw. Live Stock Judging. A repetition of 6aw for students who have had 1aw or 1bw.

7bw. Advanced Live Stock Judging. In this course students are required to place classes of live stock after the manner followed by judges at county fairs and live stock shows. There will be little work with the score card except by way of review. The student taking this course is assumed to have had courses 1aw and 6bw. For second year students only.

Dairy Husbandry

Mr. Eckles, Mr. Rinkle, Mr. Reed, Mr. Regan, Mr. Stanton.

1aw. Farm Dairying. The aim of this course is to give the student such instruction regarding dairy work as will be of value to anyone engaged in farming whether especially interested in the production of dairy products for market or not. The course consists of two lectures and two



LEARNING BY DOING

Short Course students churning and working butter under conditions that should exist on every Missouri farm where cows are kept to furnish the home butter supply.



SCORING A TEN-EAR SAMPLE OF CORN

Every student in the Two Year Winter Course is drilled in the selection of corn for seed and show. It takes good seed to insure a large yield.

laboratory periods a week in one term of the first year of the Short Course. It includes the nature, composition and properties of milk, its use as food, the separation of cream, and butter making under farm conditions, testing cream and milk for butter fat, testing individual cows, the proper methods of handling milk and cream.

2bw. **Milk Production.** This course consists of three lectures a week in the second term of the second year. The purpose of this course is to give practical instruction regarding the dairy cow on the farm, including adaptation of breeds for various purposes, selection of individual cows by type and by records, keeping milk and butter fat records, selecting the bull, raising calves, feeding cows, general care and management. The large herd of dairy cattle belonging to the College and other nearby dairy herds are used in demonstrating and illustrating this course.

Farm Crops

Mr. Hutchison, Mr. Hackleman, Mr. Evans, Mr. Bentley.

1aw. **Cereal Crops and Grain Judging.** This course has to do with the principles concerned in the production of corn, oats, wheat, rye, barley, and other grain crops. The methods of preparing the seed bed, planting, cultivating, and harvesting these various crops are considered in detail, together with methods of crop improvement. The laboratory work has to do with a study of the various types of these crops and methods of judging and grading commercial grain.

3aw. **Forage Crops.** This course has to do with the principles of the production and handling of clovers, cowpeas, soybeans, alfalfa, rape,

sorghums, grasses, and other forage crops. Special attention is given the management of these crops and their use in cropping systems adapted to Missouri farms.

6bw. **Advanced Corn Judging.** This is a continuation of course 1aw. Its purpose is primarily to prepare students to become certified corn judges. Only fourth-term students are eligible to the course.

Economic Entomology

Mr. Haseman, Mr. Talbert.

1aw. **Injurious and Helpful Insects.** This course consists of two lectures and one field trip a week. A careful study is made of all the important insect pests of crops, stored products, live stock and those affecting health as well as those forms which are useful as food or beneficial in controlling others which are pests. A general discussion is given of the life history, transformation, appearance, nature of injury, and best remedies for the control of each pest. The lecture work is supplemented with a study of the actual specimens in the department collections and with observations in the field where the pests are found.

A special feature of this course is a series of lectures and demonstrations on practical bee-keeping on the farm.

Farm Mechanics

Mr. Kelley.

1aw. **Farm Construction Methods.** A study of the practical problems involved in the construction of fences, gates, concrete floors, foundations and walks, drainage and water systems.

2bw. **Farm Machinery and Engines.** This course has to do with the construction and handling of farm machines and the adaptation of various forms of power to the conditions on the average farm. Practical exercises and demonstrations with various farm machines in the machinery laboratory of the University form a large part of the work in this course. Students will be given a working knowledge of the operation of gasoline engines for farm use.

Farm Management

Mr. Johnson, Mr. Foard.

6bw. **General Farm Management.** This course has for its main object the making of a practical farm plan. Each student makes a map of his home farm, and with this as a basis replans the practical farm operations, considering the profitable outcome and the increasing of the soil fertility as the main object. A crop rotation will be planned, the best

and most approved methods for handling the crops within this rotation, the profitable utilization of these crops by stock, the amount of stock that can be kept, and methods or systems of live stock management, including their purchase, housing and sale, are points that will be dealt with in detail.

3aw. **Farm Accounts.** This course consists of twenty-one laboratory periods the first term of the second year. It is arranged to make, first of all, a thorough study of taking inventories and keeping financial records. More time is devoted to this than any other phase of accounting because it is more important. Labor, feeding and dairy records are also studied. Monthly statements and annual summaries are made. Practical data for all work is used.

Horticulture

Mr. Whitten, Mr. Howard, Mr. Major, Mr. Szymoniak, Mr. Wiggins.

1aw. **Propagation and Cultivation of Plants.** First term, second year. The propagation of cultivated plants by means of seeds and buds, including the treatment of refractory seeds to secure germination; the propagation of plants from cuttings; by root tips; layering; budding, grafting, etc. General nursery practices, together with the management of hotbeds, transplanting, etc.

2aw and 2bw. **Farm Orchard and Garden Practice.** A consideration of fruit soils and the planting, cultivation, pruning and general management of orchard trees and small fruits, from the standpoint of the home farm orchard and small fruit garden. This course will also deal with the home vegetable garden covering all details of fertilization, planting, and cultivating.

3bw. **Landscape Gardening.** A study of the common trees, shrubs and flowering plants used in the decoration of home grounds, and a proper grouping of the same to give a neat and pleasing effect to the farm or city home. Methods of making and preserving lawns, management and cultivation of decorative plants and flowers, pruning and spraying of shade and ornamental trees are features of the work in Landscape Gardening.

4bw. **Commercial Orcharding.** A study of the methods of planting, pruning, spraying, and general management of the commercial fruit orchard, together with the marketing, grading, and general disposition of the fruit.

Parliamentary Practice

Mr. Meyer.

1aw. **Agricultural Organization and Co-operation Among Farmers.**

A consideration of the purposes and effects of local Farmers' Clubs, Granges, County Agricultural Societies, etc., together with methods of organizing and conducting same. The course will also include a study of the powers and duties of electors and officers at district school meetings. Roberts' Rules of Order will be used as a text. Elective in the first term of the first year. Two periods each week.

Shop Work

Mr. Griffith.

1aw and 1bw. **Woodwork.** Students are taught the use and care of tools, the principles and functions of carpentry with special reference to carpentry of the farm. Elective in both terms. Two periods a week.

2aw and 2bw. **Forging.** This course includes instruction in welding, bending, forming and drawing iron and tempering steel. In applying these principles, constant reference will be had to uses of the farm. Elective in both terms. Two periods a week.

Poultry Husbandry

Mr. Kempster, Mr. Webster.

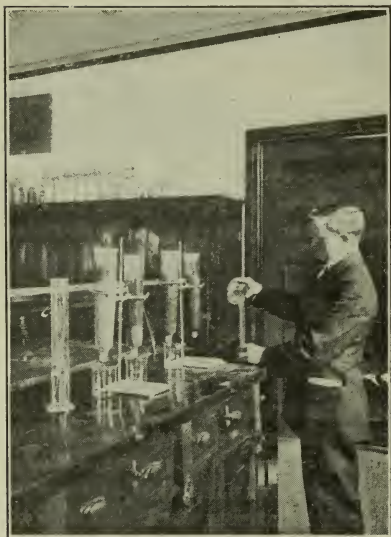
1aw. **Farm Poultry Management.** A lecture course for farmers raising poultry on the farm. This course deals with the housing, raising of poultry, handling the stock for market, and egg production, killing, dressing, diseases, hatching and rearing the young, etc. It teaches the person on the farm how to more efficiently handle the poultry under farm conditions.

2aw. **Farm Poultry Practice.** A laboratory course which is elective for second year short course men. This course acquaints the student with the operations around the poultry house such as killing and dressing, making and applying louse powder, building brood coops, etc., thus familiarizing him with the every-day practices of the person engaged in handling poultry.

Soils

Mr. Miller, Mr. LeClair, Mr. Hudelson.

2bw. **Soil Tillage.** This course is designed to make the student familiar with the best methods of tillage and cultivation. The laws of physics as affecting the handling of soils are studied and illustrated by



AT WORK IN THE SOILS LABORATORY

The soils laboratory gives short course students a knowledge of soils and fertilizers that no amount of farm experience can teach.

Practice in mixing fertilizers and in making simple tests of soils will be a feature of this course.

Slaughtering and Home-Curing of Meat

Mr. Trowbridge.

Farm Butchering, Meat Cutting and Curing. This course is open to second year students only. It includes actual practice in slaughtering animals under farm conditions together with cutting and curing the meat. A detailed study is made of the various cuts of a carcass and the relative values of each. The course takes up in some detail the economical disposition of the various cheaper cuts.

laboratory and field practice. Special emphasis is laid on the control of the moisture supply in soil, the maintaining of good tilth, the preparation of seed beds and the eradication of weeds.

4bw. Soil Fertility, Manures and Fertilizers. This course includes a discussion of soil fertility and the methods of maintaining the productivity of soils. The relation of various crops to soil exhaustion and to soil improvement is considered and the methods of handling manures and fertilizers are given particular attention. The course is designed to bring out the principles of soil handling and fertilizing in order to maintain the highest state of productiveness. The results of experiments on various fields being conducted by the Agricultural Experiment Station at Columbia and in different parts of Missouri are of great service in indicating the proper treatment for the different soil types of the state.



IN THE VETERINARY LABORATORY

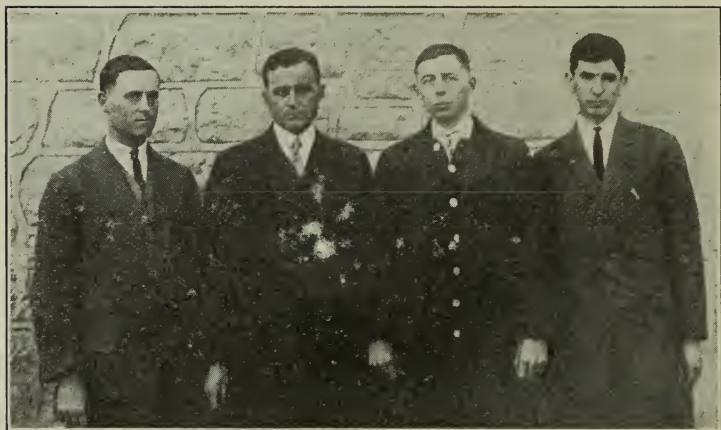
Short Course students learn how to perform simple operations in the care of sick and injured live stock. It is part of the training of a thorough stockman.

Veterinary Science

Mr. Connaway, Mr. Backus, Mr. Gingery, Mr. Tucker, Mr. Spence.

1bw. Prevention and Treatment of Animal Diseases. A study of the structure and functions of the animal body, hygiene of farm animals, indications of disease, general care and treatment of sick animals, lameness, simple surgical procedures, diseases incident to pregnancy including a brief study of the skeletons of farm animals, the casting and control of animals, dressing of wounds, preparation and application of bandages, administration of medicines, dehorning of cattle, castration, spaying.

2aw. Infectious Diseases, Medicine and Surgery. The following subjects will be considered: The teeth, their significance as regards age, also their defects and treatment; diseases of the alimentary tract, indigestion, colic, etc.; diseases and injuries of the bones, limbs and joints; diseases of the skin and eyes; diseases of the respiratory and nervous system; parasites and contagious diseases. The laboratory and clinical demonstrations will include dressing of the teeth, use of antiseptics, methods of disinfection, shoeing of horses, vaccinating against black leg, immunizing against hog cholera, methods of making post-mortem examinations. Tuberculosis and hog cholera will receive special attention.



WINNERS IN THE ANNUAL STOCK JUDGING CONTEST

- E. T. Johnston, winner of the Roelofson Percheron Medal.
H. B. Hall, winner of the Caldwell Aberdeen Angus Medal.
E. I. Donaldson, winner of the Sneed Shropshire Medal.
W. A. Vinton, winner of the Sheeley and Clatterbuck
Duroc Jersey Swine Judging Medal.

SCHOLARSHIPS, PRIZES, AND MEDALS

State Fair Scholarships. The Missouri State Fair management offers two \$50 scholarships to be awarded at the 1914 State Fair which is held at Sedalia, Missouri, September 26 to October 3. One of these scholarships will be given to the best judge of live stock and the other for the best judge of corn. These scholarships are not available for men who have ever attended a college of agriculture. For details concerning the manner in which awards will be made, write to Secretary John T. Stinson, Sedalia, Missouri.

Live Stock and Grain Judging Trophies. At the close of the Two Year Winter Course in Agriculture in February, second year students are given an opportunity to compete for prizes and medals in a stock judging contest and a grain judging contest. These contests are of great value in demonstrating a student's ability as a judge of grain and live stock. The contests bring out the best judging ability in the class and the competition for the trophies is one of the features of the year.

STUDENT ACTIVITIES

Short Course Literary Society. All students taking the Two Year Winter Course in Agriculture are urged to become members of the Short Course Literary Society. This organization is entirely under the control of Short Course students who elect their own officers, make their own rules and regulations, appoint committees and transact the usual business of such a society. Meetings are held every Friday evening at which a program consisting of music, recitations, readings and debates is presented. It furnishes one of the most enjoyable and profitable features of the course and no student should fail to take advantage of the opportunities it offers.

Other Organizations. The Short Course offers opportunities to become familiar with the work and purposes of the Grange, the Farmers' Union, and numerous other state and local farmers' societies, all of which are open to students of the Short Course. Many will find it distinctly to their personal advantage to become members of one or more of these organizations.

SHORT COURSE FOR WOMEN

The home is the most important factor in farm life. The problem of how to keep the boy on the farm is exceeded in importance only by one other and that is: How to keep the girl in the home. Thinking men everywhere have agreed that the solution of the problem so far as the boy is concerned lies in training him to be a skilled farmer, and in showing him that there is more to farming than mere manual labor.

Surely the girl should be given at least an equal opportunity to learn of the new ideas in the management of home affairs. The waste of material things in the home and still more important the waste of time, strength, and energy, is generally the result of not knowing how to make the best of the resources at hand. It is for the purpose of securing a more economical administration of household affairs in these different lines that the course is offered.

THE PLAN OF THE COURSE

The Short Course for Women lasts for seven weeks. It begins November 2, 1914, and ends December 18. Work is given in those subjects with which a woman as a home maker should be familiar. Economy in the management of household affairs is the key note of the whole



SHORT COURSE GIRLS IN THE COOKING LABORATORY

There is a difference between being full of food and being well-fed. The balanced ration for man is an important factor in house-hold economy.

course. The student learns how to save materials, time, and labor. By means of lectures she is taught why certain things and certain methods are better than others. Then, by actually doing the work in the various laboratories, she applies the knowledge gained in the lecture room to practical cooking, sewing, millinery, butter making, etc. It is a practical course which trains the hand as well as the intellect. It offers the kind of knowledge which a woman can apply in her every-day housework and her every-day relations to the farm.

Students are given an opportunity to choose the special studies in which they are most interested. The Department of Home Economics offers studies arranged specially for the Short Course for Women. Students may select one or any number of these subjects. In addition all the studies in the Two Year Winter Course in Agriculture are open to women students. The courses in farm dairying, poultry raising, fruit growing and landscape gardening are especially recommended. It is expected that women students will choose part of their studies in Home Economics and part in Agriculture.

WHO MAY ATTEND

Any woman over sixteen years of age may attend. Older women who have had the care and responsibility of managing a house will find much that will interest them and on account of their experience will be able to derive even greater benefit from the course than girls who are less experienced. It is desirable that all students should have at least a common school education, but an earnest and sincere purpose is considered above other prerequisites. There are no entrance examinations.

STATEMENT OF STUDIES

Food Work. A study of what to eat, how much to eat and how it should be prepared. This course aims to make the student independent of the recipe by teaching general combining proportions and the principles underlying various combinations. Special attention is paid to the composition of the foods studied to give a general knowledge of what we should eat, and an idea of the comparative value of the different food stuffs.

Planning and Preparation of Meals. This course will consider the planning of a well-balanced meal and its systematic preparation. Its purpose is to give practice in home cooking. It will include the study of the principles which underlie the daily food requirement and its proper division among the meals of the day. These meals will be planned at various costs, prepared and served. This course must be preceded or accompanied by the elementary food course.

Hygiene and Sanitation. The effect of the air we breathe, the water we drink, and the house in which we live, upon our physical health. This course aims to bring out the close relation which exists between disease and

such simple factors in our every day life as fresh air, proper care of the body, furnishing of the home so it does not harbor dust, etc. This is an age of preventive medicine. Let us learn how to keep well.

Sewing. Garment cutting and making from patterns which have been drafted and fitted. This course makes it possible for the student to plan her own underwear and simple dresses, then draft a pattern for or adjust a ready-made pattern, cut, fit, make, and finish garments. Enough of hand work is given to enable the student to finish neatly the garments made, and to keep all clothes in repair. The comparative cost of different grades of material and methods of making are considered.

Dressmaking. The fundamental principles of dressmaking will be presented in this course. It will include a consideration of the drafting and adjusting of patterns, the planning, cutting and making of a woollen skirt and a lined dress. It aims to give that knowledge that is requisite for the home dress-maker. Some time will be spent in the discussion of the choice of materials and the application of design to dress.



REDUCING THE COST OF LIVING

Millinery practice is just one of the popular practical courses in Home Economics.

Millinery. This course aims to teach the young women how to make, trim and retrim their own hats. It will include the designing and drafting of patterns for hats; construction of frames of buckram and wire; covering and finishing with velvets, nets and straws; making and placing of trimming. All of these will be applied in the making of hats from original designs.

Home Care of the Sick. Considering first the care of the patient, the topics discussed will be: choice and preparation of the sick room, care of the patient, bathing of the patient, making of patient's bed, and the importance of carrying out the doctor's orders implicitly. Next, as so many diseases are transmissible, the prevention of further contagion will be considered, isolation of patient, disinfection of anything removed from room, and care of room after the recovery of the patient. Special attention will be given to the care of the patient during certain more common diseases, as tuberculosis, typhoid and pneumonia, in which the nursing is such an important factor.

Advanced Dressmaking. (For those students who have had sewing and dressmaking or their equivalents.) In this course the students will make a woolen skirt and a dress with a fitted lining.

Canning and Preserving. A study of the principles which underlie food preservation. This will be considered from the economic and scientific standpoints. As much time as possible will be spent in practical work.

Poultry Raising. A series of twenty lectures dealing with the problems of farm poultry raising. This takes up the housing, feeding, hatching, rearing, the common poultry diseases, and the handling of poultry products. It acquaints students with the ordinary practice of poultry culture and teaches them how to handle more efficiently the farm poultry flock.

Farm Butter Making. One lecture and one laboratory period each week. This course includes the composition and properties of milk, its use as food, milk and cream testing, care and handling of milk and cream, the principles and practice of butter making on the farm, and the marketing of farm butter.

Handicraft. Once a week for a two hour period. Lectures, discussions, and practical work dealing with the application of art principles to handicrafts, house furnishings, and dress.

(The exact cost of this course cannot be given, but rarely exceeds \$1.)

Fees and Expenses

There is no charge for tuition, but each student pays an incidental fee of five dollars for the term of seven weeks. The following laboratory fees are required: food work, \$2.50; planning and preparation of meals, \$2.50; canning and preserving, \$1; sewing, \$0.50; millinery, \$0.50; dressmaking, \$0.50; handicraft, \$1 (approximately.)

Rooms may be secured in Columbia at prices ranging from eight to fourteen dollars per month. Where two persons occupy the same room, each pays one-half the above sum. The price paid depends upon the size of the room and its conveniences. Board may be had at prices varying from \$3.50 to \$4.50 a week. Where it is necessary to have the cost even lower than that cited below, several women may co-operate in a plan for

light housekeeping. Suitable rooms for such purposes are to be found in Columbia.

A conservative estimate of the expenses while in Columbia is:

Fees.....	\$ 8.50
Room (with roommate).....	10.00
Board.....	30.00
Books.....	3.50
Laundry.....	4.00
Total.....	<hr/> \$56.00

What to Bring

The landladies furnish bed linen and covers, but each student is expected to bring her own towels. An extra blanket will usually be most acceptable. For the Food Course at least two plain white aprons will be needed. These should be plainly made, buttoning rather than tying at the belt, and should have bibs, either plain or with wide straps over the shoulders. All equipment for the sewing and millinery classes will be furnished. The material for the suit of underwear and simple dress which will be made in the sewing class may be brought along or purchased here. A long sleeved gingham apron will be found most serviceable.

When You Get Here

If possible, all incoming Short Course students, who make arrangements in advance, will be met by members of the Home Economics Club. In case such arrangements have not been made come directly to the Agricultural Building. (See map on page 43.)

Students should plan to reach Columbia on Monday, November 2. The offices of the University are not open on Sunday and students who come in on that day may have some difficulty in locating desirable and convenient rooming and boarding places.

SHORT COURSE IN DAIRYING

Instruction in creamery work has been given each year since the Dairy Department was established in 1901. The growing interest in this industry in Missouri makes it advisable to increase the time devoted to this subject and to add instruction in ice cream making. The Short Course in Dairying is offered for the benefit of those who wish to fit themselves for creamery work or to operate large private dairies. It covers seven weeks' time beginning January 4, 1914. It ends February 20. The laboratory fee for this course is \$5.00.

The total cost need not exceed \$55.

SCHEDULE OF STUDIES

	Lecture	Laboratory
Elements of Dairying.....	14	..
Milk Production.....	21	..
Testing Milk, Cream, Butter.....	5	15
Dairy Bacteriology.....	10	..
Creamery Buttermaking.....	10	45
Ice Cream Making.....	10	10

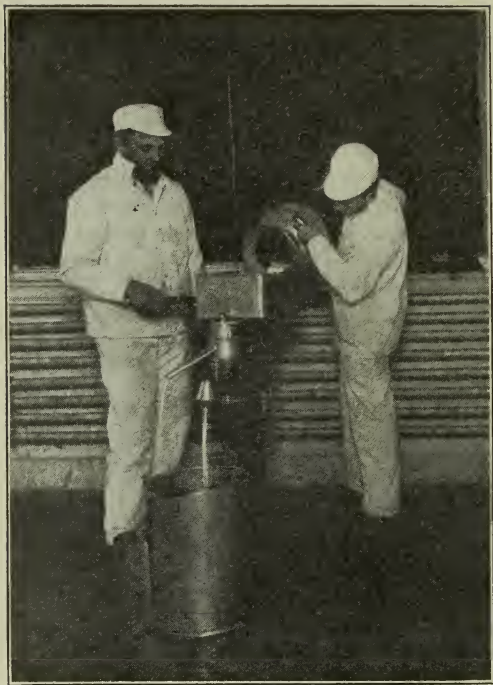
A description in detail of what is given under the titles of "Elements of Dairying" and "Milk Production" is found on pages 13 and 14. These lectures are taken with the students of the Two Year Winter Course in Agriculture.

STATEMENT OF STUDIES

Testing. Instruction in this subject will include the sampling and testing of milk and cream by the Babcock method. Various methods of taking samples will be tried and full instruction given as to the proper methods of making accurate tests for butterfat in these products. Practice in using tests for finding the amount of water in butter is also included.

Dairy Bacteriology. This subject will be given by means of lectures and demonstrations. The object is to teach the student the principles upon which the proper handling of milk, cream, and other dairy products is based. Special attention is given to the means by which milk becomes contaminated in the barn and how it should be handled to keep out impurities. The ripening of cream, the making of starters, and the study of the cause of variation in the flavor of butter is part of the instruction given in this course.

Creamery Buttermaking. The object in giving this instruction is to make the students familiar with the proper methods to be followed in buttermaking as practiced under factory conditions. Lecturers will give instruction and directions as to how the work should be done and the



OPERATING A HAND SEPARATOR

All Short Course students who study dairying learn how to operate all the standard makes of cream separators.

student will follow these directions with practical work in receiving, sampling and testing cream, pasteurizing, ripening, churning, working, and preparing butter for market.

Ice Cream Making. This subject is becoming of more importance each year and is being developed along with creamery buttermaking in many cases. Facilities are at hand to give good instruction along this line. Ice cream is made regularly and supplied to the leading retail store in the city. The lectures explain the principles and proper methods to be followed in making the best product and the student has opportunity by actual experience to learn how the work is done. Various experiments are made to illustrate the results of proper and improper methods.

SPECIAL POULTRY COURSE

The unusual interest in poultry raising brought about by the rise in price of other foodstuffs has increased the demand for poultry instruction. To meet this demand the College of Agriculture of the University of Missouri has established a Special Poultry Course. The course is for busy people. It lasts seven weeks, beginning Monday, January 4, 1914, and ending Saturday, February 20. To acquaint the student with the problems of the poultry man, to teach him how to raise chickens more efficiently, to make him realize the chances of failure and also the opportunities for success—these are some of the things the Special Poultry Course aims to accomplish.

The work is designed especially for the busy man who cannot spend more than seven weeks in fitting himself to be a poultry specialist, or to operate a small poultry plant with the same exactness that a poultry specialist would demand. The course covers the same field as that pursued by regular students, but takes up only the more practical aspects of the work. It deals with the fundamental things. It presents in a plain sensible manner the principles of poultry culture and acquaints the student with the practices of poultry raising.

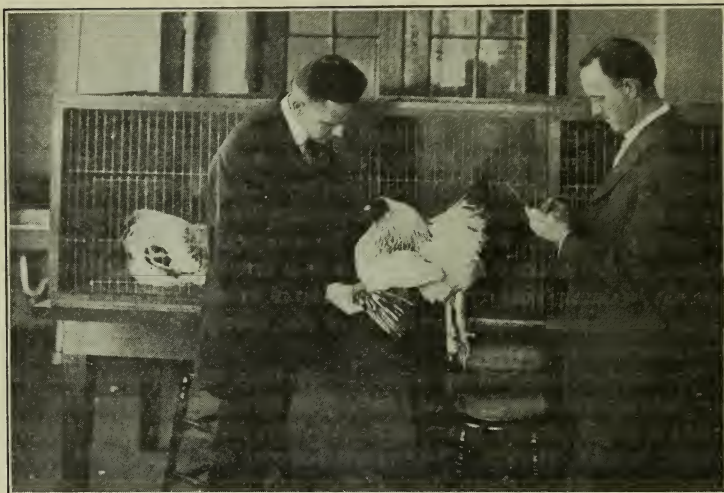
FACILITIES FOR INSTRUCTION

The equipment of the Poultry Department is complete and modern. The Poultry Building is a stone structure 30x60 and has three class rooms besides an incubator cellar, having a dozen types of incubators and a capacity for 2500 eggs. The poultry plant covers five acres, has a housing capacity for 700 mature birds, and brooding capacity for 2000 chicks. The buildings have a total of 400 running feet and consist of twenty-five pens for instructional work. The stock consists of a dozen varieties, thus affording the student excellent opportunities to learn the points of the different breeds.

STATEMENT OF STUDIES

3bw. **Poultry Management.** A lecture course covering the entire field: housing, yarding, breeds and breeding, fattening, killing, dressing, marketing, feeding for egg production, diseases, incubating, brooding, and general summer care. Lecture daily.

4bw. **Poultry Management, Laboratory.** Laboratory work daily covering the same ground as 3bw but consisting of actual work, such as drawing and criticising plans, judging chickens for fancy and utility purposes, grading eggs, killing and dressing fowls, making and applying louse powder, mating pens, studying incubators, brooders, etc.



SHORT COURSE MEN SCORING A WHITE BRAHMA COCKEREL

In training students in the Short Course, it is recognized that the successful poultry breeder must be a good poultry judge.

5bw. **Poultry Practice.** A practice course in which the student feeds and cares for laying hens, operates incubators, brooders, etc., and learns the art of poultry raising by doing the thing itself.

In addition to the above, regular students in the Special Poultry Course will elect Orchardng and Small Fruits (p. 16) and one other elective in the Two Year Winter Course in Agriculture.

AGRICULTURAL LIBRARY

The Agricultural Library contains 11,571 books relating to all phases of farming. Here, too, may be found current files of all prominent American farm papers, experiment station bulletins, reports of the national Department of Agriculture, and of various agricultural societies of Missouri and other states. The library is open to all Two Year Winter and other Short Course students at all times and affords a splendid opportunity to become familiar with the choicest farm literature.

FARMERS' SHORT COURSE

During the second week in January each year the College offers a short course in Agriculture for farmers in connection with the Farmers' Week Program arranged in co-operation with the State Board of Agriculture. In this course special lectures and demonstrations in soils and farm crops, animal husbandry, dairying, horticulture and poultry farming are given in the classrooms, laboratories and live stock judging pavilion belonging to the University. Farmers to the number of 1581 were enrolled for this course in 1913. Among the farmers attending there were representatives from 18 states. This course will be given again January 11 to 15, 1915.



MISSOURI FARMERS AT THE COLLEGE OF AGRICULTURE

During the 1914 Farmers' Week, 2240 farmers attended the College of Agriculture. They came from ninety-two counties of Missouri and eighteen other states.

FOUR YEAR CURRICULA IN AGRICULTURE

Students who have had the equivalent of a four year high school training are advised to enter one of the regular four year curricula in Agriculture or the curriculum in Forestry, rather than the Short Courses. The opportunities for graduates of the longer courses are unlimited. The College has not been able to supply the demand for farm managers, teachers in agricultural schools, investigators in experiment stations, scientific aids in the United States Department of Agriculture, foresters, farmers' institute lecturers, and agricultural journalists.

One of the recognized functions of the College of Agriculture in its long courses is to train for actual farm work. The University of Missouri believes that any one who is to manage a good Missouri farm is entitled to the same high grade of instruction as is the lawyer, the physician, the preacher, or the teacher. Every important phase of farming is given careful attention—stock raising, fruit growing, grain farming, dairying, poultry raising, drainage, crop rotation, and business management.

Fifteen units, the equivalent of a four-year high school course, are required for admission to the regular curricula in Agriculture and Forestry. A unit is the equivalent of a high school subject pursued five periods a week for at least thirty-six weeks.

Applicants for admission who are deficient in a small portion of the requirements may be admitted conditionally at the discretion of the Dean of the University Faculty.

Mature men and women may be admitted to the College of Agriculture for special study in such subjects as they are prepared to pursue with profit to themselves. Such students must be at least twenty-one years of age. Special students are not candidates for degrees and cannot become such until they have fulfilled all requirements for admission. Entrance cards for special students are issued by the Dean of the University faculty to whom applications for admission should be sent.

For further information in reference to admission, write to the Dean of the University Faculty, Columbia, Missouri.

WHAT THE COLLEGE OF AGRICULTURE IS DOING FOR MISSOURI

Hog Cholera Serum Distribution. An appropriation made by the forty-seventh General Assembly has enabled the Agricultural Experiment Station to materially increase its output of hog cholera serum. During the year, 208,619 doses were distributed to the farmers of Missouri. This is an increase of 30 per cent over the previous year. This serum was sent into ninety-nine counties and to 3389 farms. The number of doses sent out practically represents the number of hogs treated. Between 85 and 90 per cent of the hogs treated were saved. Even with the increased facilities, it has been impossible to do much more than to treat animals in herds in which the disease had started. The application of the number of doses mentioned, therefore, means that approximately 175,000 hogs were saved by the use of this treatment. At ruling prices, this represents a cash saving to the farmers of Missouri of over a million dollars and probably a million and a half would be safely within the range of conservatism.

Outlying Experiment Fields. In order to increase the value of its investigations with crops and soils, the Missouri Agricultural Experiment Station has established eighteen outlying experiment fields in seventeen different counties of the state. These fields have been selected because each one is representative of the special soil and climatic conditions of that section of the state. Upon these fields the experiment station is conducting experiments in the use of fertilizers, variety tests of various crops suited to the locality and drainage experiments in those sections of the state where drainage is a problem.

Outlying experiment fields are located in the following counties: Knox, Linn, Nodaway, Pike, Callaway, Christian, Dent, Barton, Jasper, Macon, Bates, Phelps, Audrain, St. Charles, Franklin, Shelby, and Lewis.

Soil Survey of Missouri Counties. In co-operation with the United States Department of Agriculture, the Missouri Agricultural Experiment Station has made a detailed soil survey of thirty-six counties in Missouri. With the present force of men engaged in the work, it is possible to complete five counties each year. In making a soil survey of a county, each quarter-section in the state is visited, soil samples taken and sent to the College of Agriculture at Columbia for chemical analysis. The report for each county shows the physical character of the soil as well as its chemical composition and includes a general agricultural survey of the county.

Up to the present time the following counties have been surveyed: Atchison, Barton, Bates, Cape Girardeau, Carroll, Cass, Cedar, Cooper, Crawford, Dunklin, Franklin, Greene, Howell, Jackson, Laclede, Lincoln, Macon, Marion, Miller, New Madrid, Nodaway, Stoddard, Pemiscot,

Perry, Pike, Platte, Putnam, Ralls, Saline, Scotland, Shelby, St. Charles, St. Louis, Sullivan, Audrain, and Webster.

Seed Testing Laboratory. In co-operation with the Bureau of Plant Industry, the station has been conducting a seed laboratory in which farm seeds are examined free. This service which the station and the Department of Agriculture have been rendering to Missouri farmers has been in the highest degree valuable to those persons who have availed themselves of this opportunity.

During the last year 1337 samples of various seeds were tested. Of this number, 751 were from farmers and 586 from seedsmen. On many of these samples, a test was made both for purity and for germination. Altogether, there were 757 tests for purity, 949 for germination, 53 for rough examination and 134 for identification of the species. The per cent of clover and alfalfa seeds containing dodder was 17 as against 21 for the year preceding.

Co-operative Experiments with Missouri Farmers. The experiment station is co-operating with farmers in practically every county of the state along twenty-five different lines. Six departments of the college are directly concerned with this work of co-operation. The following table shows the extent of the co-operative work carried on by the college:

Department	Number of Projects	Total Number Co-operators	Number Counties Co-operating
Agronomy.....	8	133	74
Entomology.....	2	332	84
Dairy.....	3	11	11
Farm management.....	6	1870	76
Forestry.....	1	2	2
Horticulture.....	3	10	9

Branch Short Courses in Agriculture. In order to extend the teaching service of the College of Agriculture to mature farmers who are unable to leave their farms to come to Columbia, Branch Short Courses in Agriculture have been provided. These courses are given anywhere in the state where the local interest is sufficient to warrant the expense. The course is five days in length and the work is arranged to suit the special needs of the community in which it is held.

During the winter of 1913-14, Branch Short Courses in Agriculture were held at the following places:

Porter School near Kirksville, Adair County; Urbana, Dallas County; Pomona, Howell County; Callao, Macon County; Maywood, Lewis County; Farmington, St. Francois County; Orchard Farm, St. Charles County; Palmyra, Marion County; Malta Bend, Saline County; Holden, Johnson County; Shelby, Shelby County; O'Fallon, St. Charles County.

The total attendance at these courses was 1115.



A CHAMPION AND A SIRE OF CHAMPIONS

Honorable (54635) 41371, a Percheron stallion owned by the University of Missouri, is a fine type of draft horse perfection.

Farmers' Meetings. Through the medium of farmers' institutes, special trains, and special meetings arranged by farmers' clubs, commercial clubs, granges, county farm advisers and various other agencies, men from the College of Agriculture have been enabled to reach nearly 50,000 people in nearly half the counties of the state, during the past year. This form of extension work is of great importance in paving the way for more intensive and systematic work.

Agriculture in the Rural Schools. The department of rural education has continued its work of helping the rural schools of the state in the organization of agricultural instruction. In carrying out this work, the professor of rural education has made 163 addresses during the year to 18,304 people. Twenty of these addresses were on consolidation of schools and on the subject of reorganization of the course of study, making agriculture the central subject. Fully 3000 teachers have been reached in these addresses. Personal visits have been made to 65 schools. As

noted elsewhere, 2500 letters have been written during the year. An investigation showed that more than 30,000 pupils were studying elementary agriculture in the rural schools of Missouri. At present the work is largely text book work but a beginning has been made and practical results may be expected in the immediate future.

County Farm Advisers. In the fall of 1912, the Missouri College of Agriculture entered into a co-operative agreement with the United States Department of Agriculture by which the college and the department each agreed to pay one-fourth the salary of an agricultural agent in Missouri counties in which the County Court would appropriate money for the remainder of the salary for such a man. The county agents in this state are known as farm advisers.

Twelve counties of Missouri now have county farm advisers. They are: Cape Girardeau, Buchanan, Pettis, Johnson, Dade, Audrain, Jackson, Marion, Scott, Cooper, Greene, and St. Francois. Saline County has organized a Farm Bureau and engaged a farm adviser who will begin work June 15.

Judging Live Stock. The demand for judges of live stock to assist at county fairs continues to grow. The college is not in position at present to extend its services as fast as the demands increase. During the last fair season, however, the college supplied live stock judges at fifty-three county fairs at which 385,000 people were in attendance.

Judging Corn. At thirty-six county fairs men from the college judged corn and small grains. The attendance at these various fairs and corn shows was 75,500.

Orchard Demonstrations. A large proportion of the orchards in Missouri as in other states are unprofitable because of lack of proper attention. In order to demonstrate the advantage of right methods of pruning, spraying, and cultivation, the Agricultural Experiment Station conducted five demonstration orchards in three of the fruit growing regions of the state. At Pierce City an orchard was sprayed three times with Bordeaux mixture and arsenate of lead (the latter being used with the last two applications) with the following results at harvest time:

Variety.....	Missouri Pippin
Percentage of marketable fruit	
Sprayed.....	94 per cent.
Unsprayed.....	18 per cent.
Value of crop at current prices	
Sprayed.....	\$202.20 per acre.
Unsprayed.....	9.80 per acre.
Cost of spraying three times.....	12.00
Net profit due to spraying.....	180.40

Fertilizing Strawberries and Peaches. For many years it was believed by Missouri strawberry growers that nitrogen in some form was the proper fertilizer for strawberries. The experiment station has con-

ducted fertilizer experiments on several of the leading strawberry farms of the state for several years and has invariably found that instead of increasing yields, nitrogen has reduced the yields. On the other hand, it has been found that an application of 225 pounds of acid phosphate an acre, has increased the acre yield to the value of \$40.

The recent year's experience shows that young peach trees newly set fertilized each spring with one-half pound nitrate of soda a tree cultivated in under the outer spread of the branches, secured a fine crop of peaches which were earlier than the unfertilized young peach trees in the same orchard. On older peach orchards the use of nitrate of soda as a fertilizer combined with proper pruning in winter has secured an average of \$40 an acre more on the fertilized than on the unfertilized trees.

Agricultural Exhibits. Two complete exhibits representing the work of the College of Agriculture and the results of investigations conducted by the experiment station were sent out on county fair circuits during the second half of August and the month of September. During this time the following eleven fairs were visited:

FAIR	COUNTY	ATTENDANCE
Bowling Green,	Pike,	18,000
Knox City,	Knox,	20,000
Green City,	Sullivan,	10,000
Maysville,	DeKalb,	9,000
Queen City,	Schuyler,	1,000
Columbia,	Boone,	20,583
Shelbina,	Shelby,	10,000
New Cambria,	Macon,	2,736
Palmyra,	Marion,	8,000
New London,	Ralls,	11,000
Sedalia (State Fair)	Pettis,	85,000

Both exhibits were brought together for the state fair which closed the fair season.

Dairy Extension. The dairy industry of Missouri is relatively new. Its development during the last few years has been very rapid. In this development Missouri farmers have needed a great deal of assistance. In order to supply this help, the College of Agriculture has appointed a man who gives his entire time to dairy extension service. Under his direction the college has prepared plans for silo construction which have been widely distributed at a nominal cost. Personal assistance and direction has been given in the erection of a number of silos. The work of conducting official tests of dairy cows is well under way and is showing results in the introduction of more high class and pure bred dairy cattle. During the last fiscal year the College of Agriculture tested dairy cows in eleven herds.

Dairy Records. A herd of four cows comprising three Jerseys and one Holstein, owned by the Missouri College of Agriculture, have produced since their first calving more than 170 tons of milk containing

butter fat enough to make more than $8\frac{1}{2}$ tons of butter. This amount of milk was 378 times the combined weight of the four animals. These four cows have earned \$6744.50 above the cost of feed and care. Their detailed record follows:

	Grace Briggs.	Alphea Elf Fourth.	Missouri Ramposa.	Princess Salatine Carlotta.
Breed.....	Jersey	Jersey	Jersey	Holstein
Age.....	16	15	14	12
Lactation periods.....	12	12	10	9
Pounds milk produced...	101,256	68,054	77,268	93,864
Pounds butter produced..	5,335	36,367	4,132	3,808
Best year milk record....	13,322	13,329	12,729	18,405
Best year butter record..	736	701	746	721

These records show what scientific methods of breeding and feeding can accomplish. All these cows were bred on the college farm. That they were economically fed is demonstrated by the large net profit secured. Missouri farmers are being taught the methods by which these cows were bred and fed.

Fertilizer Control. The farmers of Missouri are using large quantities of commercial fertilizers. Under the efficient inspection service conducted by the College of Agriculture all fertilizer sold in the state is kept up to the standard claimed for it by the manufacturer. Any farmer in the state who buys a fertilizer knows that he is buying what the manufacturer claims for it. All companies who sell fertilizers in the state must register their brands with the College of Agriculture stating the composition of the fertilizer offered for sale, and secure from the college license tags certifying to the fact of registration. Any fertilizer sold in the state which does not bear the tag of the College of Agriculture is being sold in violation of the law and the farmer purchasing such fertilizer has no assurance that it is up to the standard claimed for it by the manufacturer.

During the last year more than 700 samples were collected by inspectors from the college and analyzed by the experiment station. Report of this inspection is given in Bulletin 116 which is free to all farmers of Missouri.

Live Stock Winnings. At the Missouri State Fair ten head of fat steers exhibited by the Missouri College of Agriculture won the following

prizes: Grand champion of all breeds and ages, champion Shorthorn, champion Aberdeen Angus, champion Galloway, and twelve first prizes. Every steer in the herd was a first prize winner in its class.

At the American Royal Live Stock Show, Kansas City, the same herd won one championship, seven first prizes and four other prizes ranging from second to fifth prizes. At the International Live Stock Show, Chicago, the following prizes were won: One championship, five first prizes, four second prizes, and fourteen prizes below second prize.

Three of these steers, two Herefords and one Shorthorn, were bred by the College of Agriculture; the others were purchased as calves so that their development and final show-ring fitting was under college direction.

Nursery Inspection. This work has started with the promise of great good to orchard and nursery interests of the state. Although nursery inspection did not start until the spring of 1913, 125 nurseries were inspected in forty-five different counties. Of this number, twenty-three of the smaller nurseries which had not been having inspection regularly were found to be infested with San Jose scale and required special treatment before certificates could be issued. The total amount of nursery stock inspected was nearly 3000 acres. In every state there are a great many firms dealing in nursery stock who do not grow the stock themselves. The law requires such dealers to hold dealer's certificates. Seventy-eight of these certificates have been issued during the first year. In order to know the source of all imported stock and to make sure that it is properly certified, the Missouri law requires all outside nurserymen desiring to ship stock into Missouri to secure a state permit. One hundred and twenty-one nurseries from twenty-one states have applied for these permits. In order to completely safe-guard the legitimate nursery business in the state, it is required of all agents and salesmen that they, too, secure a state permit. Three hundred and seventy-seven sellers of nursery stock have complied with this provision of the law.

In order to prevent the introduction of insect pests and plant diseases from foreign countries, it has been made the duty of the state nursery inspector to inspect all foreign shipments of nursery stock. Nearly 500 cases of stock have been inspected during the past year.

Boys' Corn Growing Contest. This contest is organized under a special appropriation to the College of Agriculture which is expended by and with the advice of the Missouri Corn Growers' Association. The purpose of the contest is to interest Missouri farm boys in the problem of growing larger crops of corn by teaching them right methods of seed selection and seed testing as well as proper methods of cultivation. The average annual enrollment for this work is about 3000 Missouri boys.

Short Course for Boys. During the session of the Farmers' Short Course in January, 1914, a special short course for boys less than 16 years old was held. Fifty-nine boys from six counties attended this short course. Johnson County led with 22 boys; Buchanan County was second

with 15, while Marion County sent 12. Adair, Pettis, and Dade Counties, sent 10 boys altogether. The average total cost for each boy during his stay in Columbia was \$4 for the four days. A special instructional program for the Boys' Short Course was carried out. This program included work in judging live stock, in soil studies, and orchard practice. A live stock judging contest and a corn judging contest were the two features of the course. Valuable prizes and medals were given to the winners in these contests.

Boys' and Girls' Club Work. On March 1, 1914, the College of Agriculture started its first work in the organization of boys' and girls' clubs. During the spring nearly 75 clubs were organized with a membership of more than 1000 boys and girls between the ages of 10 and 18 years. This work is carried on directly with county superintendents and farm advisers in those counties where there are county farm advisers. The plan is to connect the club work closely with the rural schools of the state. Only two lines of work have been attempted thus far: Corn growing for the boys and tomato growing and canning for the girls. With the opening of the country schools in the fall of 1914, several other lines of work will be started.

Correspondence. During the last fiscal year 65,138 letters were written by the various departments of the College of Agriculture. A small proportion of these letters related to questions of administration. The balance were written in reply to requests for information concerning farm practices, care of live stock, orchard management, etc.

Correspondence Courses. Courses in agriculture are now being offered by correspondence. The administration of this phase of extension teaching in agriculture is in charge of the Secretary of the University Extension Division. Agriculture taught by correspondence is credited in the Two-Year Winter Course but not in the four-year college course.

THE UNIVERSITY OF MISSOURI

The University of Missouri stands at the head of the educational system of the state. It is one of the oldest institutions in the West and ranks among the best American schools of higher education.

The University was founded at Columbia in 1839 and instruction in academic work was begun in 1841. Few schools in the United States have made the advancement that Missouri has during the last fifteen years. In 1897 the enrollment was only 805 and in 1913 it was more than 3,600. The increased enrollment is indicative of the development of the school in educational efficiency.

The work of the University is now carried on in the following schools and colleges:

- College of Arts and Science
- College of Agriculture
- School of Education
- School of Law
- School of Medicine
- School of Engineering
- School of Mines and Metallurgy
- School of Journalism
- School of Commerce
- Graduate School
- Extension Division

All of these divisions are at Columbia with the exception of the School of Mines and Metallurgy, which is at Rolla. In addition, emphasis is given particular lines of work by the establishment of minor divisions, the chief of which are the Agricultural Experiment Station, the Engineering Experiment Station and the Missouri State Military School.

The fundamental aim of the University is the development of the highest and most efficient type of citizen. The school is supported by the state and endeavors to return to the state practical service. Of later years extension courses, experiment farms, and free literature on practical subjects have widely extended the University's influence. Recently the School of Journalism has been issuing free bulletins on subjects of vital interest to the newspapers, which are expected to fill much the same field that agricultural bulletins have so successfully filled for the farmer. The various extension courses have proved highly satisfactory and have rendered real service to people of the state who previously benefited only indirectly from the University.

The University is at Columbia, a town half way between St. Louis and Kansas City near the center of the state. It is reached by the Wabash and the Missouri, Kansas and Texas Railways. Columbia is a progressive

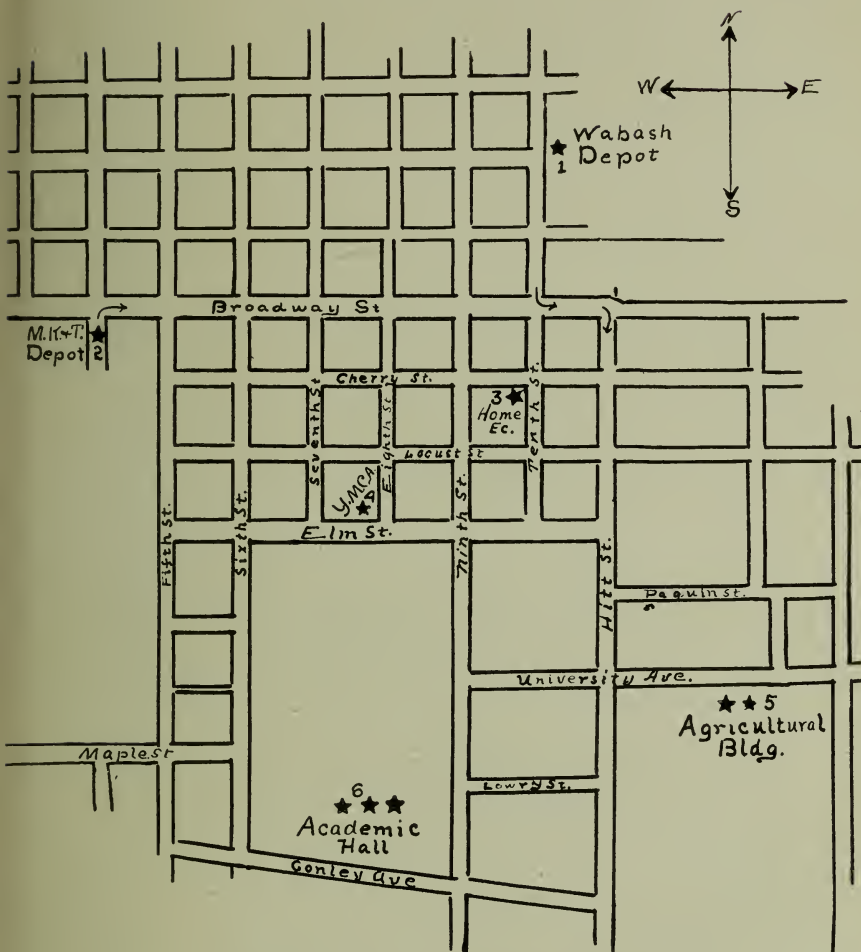
and prosperous town, having doubled its population in the last few years. It has nearly twenty miles of paved streets.

The University grounds cover more than 800 acres. The main divisions are in the west campus, the east campus, Rollins Field for athletics, and the agricultural college farm.

The following University buildings are at Columbia: Academic Hall; Laws Observatory; separate buildings for chemistry, zoology and geology, physics, engineering, law, biology, and manual arts; two power houses; Medical Laboratory Building; Parker Memorial Hospital; Agricultural Building; Horticultural Building; green houses; Live Stock Judging, Dairy, Farm Machinery, Poultry, and Veterinary Buildings; the agricultural college farm barns and buildings; Switzler Hall, for the School of Journalism; Schweitzer Hall for Agricultural Chemistry; Gordon Hotel Building for Home Economics; Benton and Lathrop Halls, dormitories for men; Read and Sampson Halls, dormitories for women; Rothwell Gymnasium; the houses for the President of the University and the Dean of the College of Agriculture; the High School, and the Elementary School Buildings used for practice schools in the School of Education.

Full information regarding the University is given in the catalogue which will be sent on request without charge. For this or special bulletins of the Graduate School, College of Arts and Science, College of Agriculture, School of Education, School of Law, School of Medicine, School of Journalism, School of Engineering, School of Commerce, or Extension Division, write to

DEAN OF THE UNIVERSITY FACULTY,
UNIVERSITY OF MISSOURI,
COLUMBIA, MISSOURI



A Guide for Short Course Students

1. Wabash Depot. 2. M. K. & T. Depot. 3. Home Economics Building.
4. Young Men's Christian Association Building; where Short Course students may obtain information in regard to rooms, board, and employment.
5. Agricultural Building, where students register for all Short Courses.
6. Academic Hall, where all Short Course students pay their incidental fee of \$5 a term and receive their study cards.

THE
UNIVERSITY OF MISSOURI
BULLETIN

VOLUME 15

Issued Three Times Monthly

GENERAL SERIES

EDITED BY
HUGH J. MACKAY
University Publisher

The General Series of The University of Missouri Bulletin consists of the announcements of the various colleges and schools which make up the University. These announcements will be sent free upon request to the Dean of the University Faculty, Columbia, Missouri.

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ANNOUNCEMENT
OF THE
COLLEGE OF AGRICULTURE
1915-1916

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UNIVERSITY OF MISSOURI
COLUMBIA, MISSOURI
July, 1915

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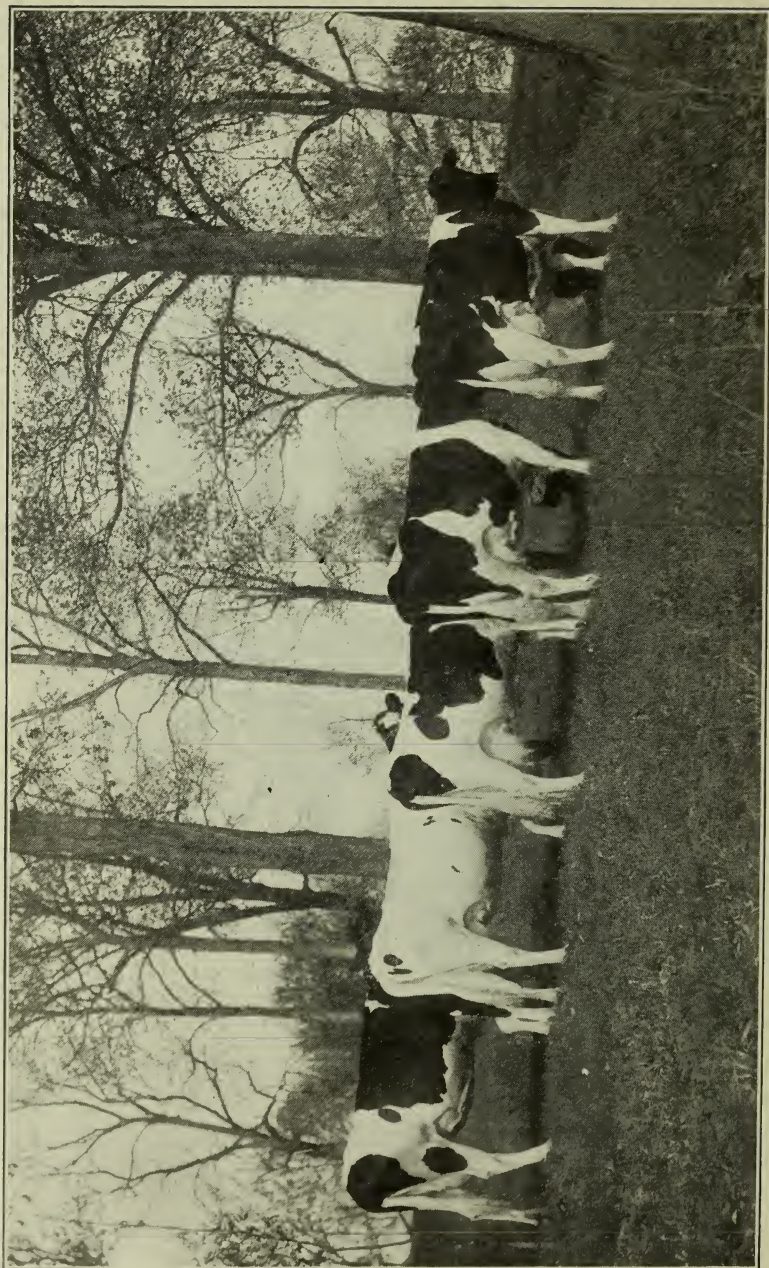
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UNIVERSITY OF MISSOURI
COLUMBIA, MISSOURI
July, 1915



These five Holstein cows bred at the University of Missouri have produced an average of more than 20,000 pounds of milk each in a season.

Opportunities in Agriculture

There has never been a time when the call for men trained in scientific agriculture was so persistent as at the present time. Positions become available faster than men can be trained to fill them. The opportunities for good men adequately trained are increasing steadily in spite of the fact that an increasing number of graduates are annually sent out from agricultural colleges. The problem of transforming the agricultural industry into modern ways is a stupendous one. It requires the best thought, the greatest energy and the truest courage that the young men of the farm and the town can bring to this high calling. From every corner of the nation comes the persistent call for men who know agriculture "from the ground up." The field is as wide as the continent. The opportunities are many.

I. Farming:

The farm is the fundamental thing in agriculture. The College of Agriculture of the University of Missouri believes that the man who desires to spend his life on a Missouri farm should have the same opportunity for training in his profession that the doctor, the lawyer, the teacher, or the preacher receives. The standard of production must be raised. This is no more important, however, than the need of putting better business methods into farm procedure and of completely making over the social fabric of the country so that the farm may be the best place in the world in which to live and enjoy life. A sensible training in agriculture makes this possible. This has been proven by a large number of the graduates of this college. The owners of large estates are calling for competent farm managers. Here is a great field for trained horticulturists, dairy-men, live stock and crop experts.

II. College Work:

With the world-wide awakening to the need of better farm methods, has come a correspondingly rapid growth and development of agricultural colleges everywhere. This has opened many teaching positions to those who know agriculture and know how to teach it to college students. At the same time college teachers are being steadily drawn into other fields leaving vacancies to be filled by men who have more recently come up from the student ranks. One of the serious problems confronting our agricultural colleges is to find men equipped by training and natural inclination to fill the teaching positions which are always waiting. More than 4000 teachers are employed by the agricultural colleges of the United States.

III. Secondary School Work:

High schools are introducing agriculture into their curricula as fast as teachers can be found to handle the work. Some states have gone even farther and have established agricultural high schools. There are now several thousand schools below college rank which are giving instruc-

tion in agriculture. Agricultural college graduates will be demanded for all these positions where the highest type of efficiency is required.

IV. Agricultural Experiment Station Work:

Of even greater importance than the teaching of scientific agriculture in colleges and secondary schools is the investigation of farm problems conducted by the various agricultural experiment stations. These problems are concerned with improvement of the standard farm crops and the breeding of new varieties of grains and forage plants; the control of plant and animal diseases; the chemical analysis of soils and fertilizers; the economical feeding of live stock for meat, milk, and labor; the control of injurious insect pests; the study of chemical and bacterial agencies in the soil; the working out of practical methods of orchard, farm, and garden management. The field for agricultural research is unlimited and the demand for such investigations increases with the years. More than 1200 persons are now engaged in agricultural experiment station work in the United States.



Animal breeding illustrated. Students studying a sire, dams, and their offspring.

V. Live Stock Farming:

The most profitable farms in the Middle West are live stock farms. Live stock farms which yield the largest returns are equipped with pure bred animals or their descendants. The business of breeding pure bred live stock is profitable. The demand for high class animals is increasing rapidly. The college teaches breed types, pedigrees, and expert handling of pure bred, registered live stock.

VI. Dairy Farming:

There probably is no one branch of agriculture in which there has been greater growth in the last decade than that of dairy farming. Cows are constantly breaking the records for the production of milk and butter. Farmers with inferior cattle are demanding a better grade. The dairyman who knows how to breed and feed dairy cows, and knows how to care for and market their products has an unlimited opportunity.

VII. Fruit Growing:

There are thousands of acres of unprofitable orchards in Missouri. This is because these orchards have not received proper care. There is a great demand for first class fruit and good opportunities in fruit growing for one who knows how. The man who is successful in fruit growing must be able to properly prune and spray his trees and know how to market his fruit. This knowledge is taught by the College of Agriculture.

VIII. Creamery Operating:

The rapid development of the dairy industry has caused many new creameries to be established. This, together with close competition has resulted in an increased demand for trained creamery operators. These men must not only know the technical methods that are followed in the manufacture of dairy products, but must understand the problems of distribution and marketing. Operators of small creameries who have agricultural college training have an excellent opportunity to aid in the development of the dairy industry in their respective communities. This field is rapidly widening.

IX. Country Ministers' Work:

It is now generally recognized that the country minister of the future will have a much closer relationship to the life of the community which he serves than he has had in the past. Ministers who will live in the country on a farm and take a leading part in the agricultural life of the community are the ones who will render the most efficient service. An agricultural college training will increase the efficiency of country ministers.

X. Industrial and Commercial Work:

The railroads and transportation companies employ a large and increasing number of trained agricultural men each year. The fertilizer companies are looking to the agricultural colleges to supply them with men who understand the whole problem of increasing and maintaining soil fertility. They are building for permanency. Packers, grain dealers, milling concerns, manufacturers of farm machinery and motors, and real estate agencies are all employing men trained in agriculture. More college graduates are needed to supply this demand.

XI. Agricultural Journalism Work:

The number of agricultural college graduates who have taken editorial positions with farm papers in the last five years has probably been greater than in the twenty years preceding. This field is limited but very desirable for those men who can qualify for the work. It is a growing field; more men rather than less will be wanted as the years go by.

XII. Extension Work:

The big problem of the agricultural colleges and experiment stations today is the problem of how to carry the information in their possession to the farmers of the nation and apply it directly to the farm. The farmers themselves and all persons interested in the farm are demanding that the agricultural colleges increase their extension service. It will take a good sized army of men to meet the needs of the extension service during the next decade. These men must largely be college graduates.

They must know the "how" of farming but they must also know the "why."

XIII. County Work:

There are 114 counties in Missouri. Fifteen of these have already asked for and been provided with county agricultural agents. In Missouri these men are known as "county farm advisers." Other counties in the state are considering the employment of farm advisers. Other states are doing even more than Missouri along this line of effective extension work. If the development of the last two years may be taken as an indication of the future, the country will call for thousands of men for county work in the next ten years. Our agricultural colleges will be expected to supply this call.

XIV. Service in the United States Department of Agriculture:

The United States Department of Agriculture holds to the agricultural interests of the entire nation a relation similar to that which the University of Missouri College of Agriculture holds to the farming interests of Missouri. Altogether there are nearly 14,000 persons in the service of the national department of agriculture. Under its supervision comes the extensive meat inspection service, food inspection, and various other forms of government inspection; the weather service with branches and substations in every state; an extensive publication service; the administration of government agricultural and forest lands; an extension service covering every phase of agricultural activity whether concerned with the actual processes of farming, the farm home, social conditions on the farm, or the education of the farm boy and girl thru the medium of boys' and girls' clubs. A large proportion of these positions are available only to graduates of agricultural colleges.

XV. Forestry Work:

With the rapid diminishing of the timber supply, the nation as a whole and several of the states individually have awakened to the need of a systematic forestry service in order to replenish our forest areas and conserve the timber supply which still remains. This has called into service a large body of men trained along agricultural and forestry lines. The demand for men has led to the establishment of forestry schools and this in turn has created a demand for teachers of forestry. The lumbering industry is also drawing heavily upon college-trained foresters. Graduates of the University of Missouri College of Agriculture have special opportunities to enter this field on account of the nearness to the great lumbering region of the Southwest. The field is a growing one and the demand for trained men will continue to increase.

XVI. Landscape Gardening:

In the care of country estates, city parks, driveways, and municipal improvement projects, men are needed who understand soils, fertilizers and the general principles of plant growth and development, and who combine with this fundamental knowledge, a thoro acquaintance with trees, shrubs, and flowering plants as well as a knowledge of the principles underlying landscape gardening. The field is limited one but offers a fine opportunity to men whose natural inclination tends in this direction.

The University of Missouri College of Agriculture

To the best trained men will come the best of the opportunities enumerated above. The best training can be given only where conditions are most favorable for effective teaching. The list of positions that have been held or are now being held by former students and graduates of the College of Agriculture (see page 47) indicates that the training given is of high quality. To train men for positions such as those listed is only one of the functions of the College of Agriculture. The training of farmers is most important. Graduates and students of the College of Agriculture are among the successful farmers, dairymen, and live stock breeders in Missouri. Former students and graduates who are engaged in actual farming are rapidly becoming leaders in their communities. Their opportunities for service to the public are as numerous as are the opportunities of those who are occupying teaching and investigational positions.

The fact that these men are assuming positions of leadership is due to their having been properly trained. Many factors make this training possible at the University of Missouri College of Agriculture.

COMPLETE AND MODERN EQUIPMENT

BUILDINGS

Agricultural Building:

A two-story stone structure with a high basement and an auditorium seating 500 persons. More than 1,000 students may be accommodated at one time in classrooms and laboratories. The building includes offices of the dean and director, the State Board of Agriculture, including the state veterinarian, the seed testing laboratory, the agricultural library, the departments of soils, farm crops, animal husbandry, farm management, forestry, rural education, rural economics, and the extension service.

Horticultural Building:

A stone building, two stories and a well-lighted basement with plant house and insectary, classrooms, laboratories, offices and preparation rooms for horticulture and entomology.

Dairy Building:

A stone building, two stories with cheese-curing room in basement, rooms for creamery manufactures, cheese making, dairy work, milk-testing laboratory, offices, and classrooms.

Physics Building:

The Physics Building, located on the East Campus, is a modern fire-proof laboratory building. Lecture rooms and laboratories are well lighted and convenient. In addition to the department of physics the department of forestry is housed on the second floor of this building.



This cow, Carlotta Pontiac, bred by the University of Missouri has produced in eight years 115,715 pounds (13,455 gallons) of milk and 6,170 pounds of butter. Her best year's record is 22,593 pounds (2,627 gallons) of milk and 827 pounds of butter. She has produced more than 21,000 pounds of milk and 800 pounds of butter each year for the last three years.

Schweitzer Hall:

A new two-story stone building for agricultural chemistry, 170 feet long and 65 feet wide, with well-lighted basement. Half of the first floor is occupied by the offices and general chemical laboratories of the Agricultural Experiment Station. The basement contains a thoroly equipped nutrition laboratory with demonstration room and large refrigerating rooms offering exceptional facilities for meat studies, including dressing and curing. The rest of the building is occupied mainly by student laboratories, lecture, and classrooms.

Biology Building:

A two-story stone building with an exceptionally well-lighted and ventilated basement. The building is 220 feet by 60 feet. It is fire-proof construction thruout and is considered to be the most modern laboratory building of the University. The departments of zoology and botany are housed in this building. The laboratories are equipped with modern furniture and fixtures. The rooms are all well-lighted and ventilated. There are two large lecture rooms in this building.

Live Stock Judging Pavilion:

A new Live Stock Judging Pavilion is available for the instruction in live stock judging. This building is adjacent to barns on the University farm. It is of steel and wood construction, the frame work being of steel. The outside dimensions are 90x160 feet. The arena is 50x120. It has a seating capacity of 1500. The arena can be divided by dropping a large curtain thus making it possible to hold two large classes in stock judging at the same time. The building includes, in addition, offices, practicum rooms, locker rooms, and shower baths. During four months of the winter, it is also used as a gymnasium for the short course students.



Dissecting a horse. The study of animal husbandry is built upon a knowledge of anatomy and physiology.

Greenhouses:

Six greenhouses are available for instruction and investigation. Three greenhouses, each 25x100 feet and two, each 16x50 feet, and one 25x50 embracing a total of 10,350 square feet under glass are used by the departments of horticulture, entomology, botany, soils, and farm crops. In addition to this there are 2000 square feet of hot

bed and cold frame space under glass. This glass space affords facilities for instructional work, the maintenance of plant collections and investigations.

Veterinary Building:

The veterinary department is housed in a new three-story building devoted exclusively to investigation and instruction in veterinary science. The building contains laboratories for anatomy, physiology, investigations in contagious and infectious diseases, the preparation of hog cholera serum, and operating rooms for clinics.

Poultry Building:

A two-story stone building, including general office, incubator room equipped with various types of incubators, classrooms, and laboratory.

The poultry department has one fifteen-pen laying and breeding house, a feed house with killing pen in the basement, two farm poultry houses, one experimental breeding house, and ten portable colony houses. Several hundred fowls, representing the popular varieties, are kept for instructional and experimental purposes.

Barn Equipment:

Special barns for horses, sheep, dairy cows, and hogs and feeding sheds for beef cattle are included in the equipment of the College of Agriculture.

LABORATORIES

Farm Machinery:

A commodious stone building equipped with the latest types of tillage machines, self-binders, mowers, corn planters, hay loaders, manure spreaders, and gasoline engines.

Botany:

Laboratories for physiological and structural botany, and culture rooms for physiological, mycological, and bacteriological work are in the new Biology Building. They are equipped with compound and dissecting microscopes, microtomes, steam and steam pressure sterilizers, incubators, balances, precision apparatus, and glassware. The herbarium amply illustrates the local flora.

Agricultural Chemistry:

The completion of Schweitzer Hall, the new agricultural chemistry building, furnishes exceptional classroom and laboratory facilities for undergraduate instruction. The new building has two large student laboratories, a nitrogen laboratory, two balance rooms and an ether extraction room exclusively for student laboratory work. The total capacity of the laboratories is 260 students each semester. A number of research rooms are provided to facilitate the research work of the more advanced students, giving special opportunities for investigations of problems in animal nutrition, silos, fertilizers, foods, feed stuffs, including a critical study of the provisional and official methods of the Association of Official Agricultural Chemists.

Entomology:

The laboratories and insectary located in the Horticultural Building are supplied with microscopes, dissecting instruments, microtomes, breeding cages, aquaria, spraying machines, insecticides and re-agents. The museum contains collections of several thousand species of the more injurious and beneficial insects, arranged to illustrate their habits of work and life history.

Horticulture:

The horticultural laboratories occupy about 6000 square feet of forcing-space under glass, a laboratory for the propagation of dormant plants, and storage room for cuttings, bulbs, stocks, and scions. The department also has laboratories for soil examinations and investigation of special horticultural problems regarding plant growth. The out-of-door collection on the horticultural grounds comprises about one thousand varieties of fruits, ornamental shrubs and trees for a study of planting, pruning, cultivating, and spraying.

In addition, eighty acres in the loess soil formation adjacent to Columbia is being developed in orchards, vineyards, etc., of a size to demonstrate the best fruit growing methods on a commercial scale. It also comprises a large collection of young seedling tree fruits which are the result of extensive breeding experiments now going on in the department.

Farm Crops:

The laboratories for instructional and investigational work include a large and well-equipped laboratory for the study and exhibition of the various types and most important varieties of farm crops, including material and equipment for the judging, grading, and handling of grains, a room for storing and fumigating classroom material, a germinating room equipped with germinators, a seed house; a research laboratory, and a seed testing laboratory maintained in cooperation with the U. S. Department of Agriculture.

The department also maintains an economic plant garden in which are grown the various types and principal varieties of all farm crops, together with the most prominent wild related forms. This affords an excellent opportunity for the study of such crops in the field and material for a systematic study of botanical characters and relationships in the laboratory.

Dairy Husbandry:

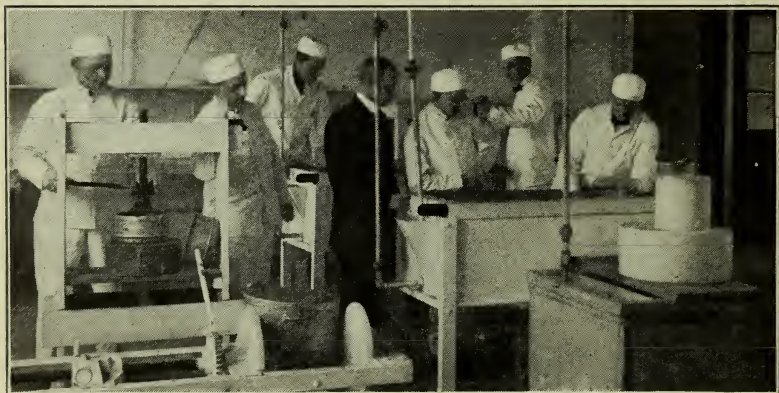
Facilities for instruction in dairy manufactures include creamery room, equipped with power separators, churns, pasteurizers, sterilizers, and butter printers; a cheese room provided with vats, cheese presses, and curing room; cream separators, milk testing apparatus, and churns; refrigerating plant and cold storage; a laboratory for instruction and investigation in dairy bacteriology.

From 500 to 1000 pounds of butter are manufactured each week thruout the year.

Forestry:

The forestry laboratory for the study of wood technology and dendrology is located in the Physics Building. The equipment includes a collection of the commercial woods of the country; cross and tangential sections of the trunks of trees of Missouri; a herbarium of tree species; exotic and native trees growing on the University campus; a forest nursery containing seed and transplant beds; and a tract of timber near the University for experimental planting and demonstration.

A permanent forest camp for the summer session of the course in forestry is established each summer on some portion of the University forest of 50,000 acres located in the Ozark region of southern Missouri. This camp is used for practical instruction in lumbering, mensuration, silviculture, and forest surveying.



Dairy students learn how to make good foreign and domestic cheeses

Soils:

The facilities for instructional and investigational work in soils include a large soils laboratory for the required course of instruction, balance rooms, storage rooms, and a special laboratory for advanced students. The equipment of these laboratories includes that necessary for work in soil physics and soil fertility. A plant house 30 by 65 feet is provided for special experiments by students and by those engaged in experiment station investigations. In addition, the various soil experiments in progress on the Agricultural Experiment Station field offer special opportunity for both instruction and investigation, while the results of the soil survey and of the various outlying soil experiment fields are used to good advantage in the instructional work.

Physics:

The physics laboratories are located in the new Physics Building. Rooms are equipped with various electric circuits, compressed air, gas, and hot and cold water. The equipment is modern and adequate. The lecture rooms are especially designed for experimental demonstrations in general physics with special apparatus for this work.

Zoology:

Laboratories for the study of general zoology, embryology, cytology, and other zoological subjects are located in the new Biology Building. They are equipped with compound and dissecting microscopes and other apparatus which is required in the different courses offered. The lecture room is equipped with a stereopticon lantern thru which microscopic slides can be shown greatly enlarged on the screen.

University Serum Farm:

A new hog-cholera-serum plant will be in operation at the opening of the 1915-16 session. This is located on a 90-acre farm about three miles north of the University farm on the Wabash railroad. This is one of the most modern plants of its kind in the United States. The plant has a capacity of 50,000,000 cubic centimeters of serum a year. When at full capacity 1500 hyper-immune hogs will be kept. The College of Agriculture will be able to meet any emergency when it is in operation. With this equipment the students in the College of Agriculture will be able to thoroly study the methods of controlling and eradicating hog cholera as well as the manufacture of serum.

LIVE STOCK EQUIPMENT

Dairy Herd:

The department of dairy husbandry maintains a herd of 100 pure bred animals of the Jersey, Holstein, Ayrshire, and Milking Short Horn breeds. In this herd at present are the state champion milk and butter cows of each of the four breeds represented. At present there are five cows in this herd that have an average yearly milk record of more than 20,000 pounds and eight whose average yearly butter record is more than 750 pounds. One cow has produced 960 pounds of butter in one year. All these animals have been bred on the University farm. For the student who expects to follow dairy farming, this herd offers an excellent opportunity to study in detail a successful system of herd management.

Horses:

The department of animal husbandry maintains a stud of twenty-five horses representing Percherons, American Saddle Horses, Standard-bred horses and Morgans. A Percheron stallion, the sire of many prize winners in the leading live stock shows of America, and sons and daughters of some of the most famous sires of America are included. In addition there are available for instructional purposes fourteen head of high-class

work horses and mules—the property of other departments—besides several stables of sale, breeding and show horses and mules in or near Columbia.

Swine:

The swine herd is made up of breeding herds of Duroc Jerseys, Poland Chinas, Berkshires and Chester Whites. About twenty-five mature sows are kept. These, with their offspring, make a herd of 125 to 175 hogs and furnish material for instructional purposes in pork production and judging. From six to twenty head of fat barrows are fitted for exhibition purposes each year.

Beef Cattle:

The department of animal husbandry maintains a herd of about sixty head of pure bred beef cattle, representing the Shorthorn, Aberdeen-Angus, Hereford, and Galloway breeds. The breeding herd is maintained in a practical and productive manner which forms a basis for a study of the management of beef cattle and supplies specimens for judging work. A herd of show steers exhibited each year at some of the leading live stock shows in the United States is also available for judging practice. Typical specimens of the various market classes and grades of cattle are secured from a market center each winter for demonstration purposes. The Agricultural Experiment Station beef cattle, numbering from thirty to fifty head, are also available for study.

Sheep:

A breeding flock of about fifty pure-bred sheep representing the Shopshire, Hampshire, Dorset Horn, South Down, Cotswold, and Delaine Merino breeds is maintained for instructional work. A small grade flock is also kept to illustrate the market classes and grades of sheep and to emphasize the value of using pure bred rams. The students are taught to shear the sheep, prepare them for shows and to manage the flock from the farmer's standpoint.

LAND EQUIPMENT

Altogether there are 700 acres on the University farm. A large part of this is hilly blue grass pasture. There is enough cultivated land to satisfy the requirements of instruction and students are given an opportunity to study in the field the effects of proper and improper soil management and crop rotation as well as to observe all the facts of plant growth and plant development which are necessary to a proper understanding of farm crop rotation. The horticultural grounds are adequate to teach the principles of orchard and garden management in every detail.

Turner Station Fruit Farm:

The University has bought eighty acres of land on the M. K. & T. railroad near Turner Station, eight miles south of Columbia. This farm lies on the fertile loess soil common along the Missouri River, said to be

the best fruit soil known. More than thirty acres are now planted to the leading varieties of apples, peaches, pears, plums, cherries and small fruits adapted to Missouri. Here students study the adaptation and characteristics of the different fruits and observe the effect of different culture methods used.



Crossing different varieties of apples in an effort to produce a new variety with a late blooming habit.

Forest Lands:

As a result of the First Morrill Act, which passed Congress in 1865, the University acquired a large amount of public land, which is principally located in the Ozark section and is covered with timber. There remains of this land about 50,000 acres. These lands are administered by the department of forestry. Every second summer the students in the department of forestry spend the entire summer in an instruction camp on these lands. Investigations are being made to determine the best methods of handling Missouri forest lands.

Other Lands:

A 120-acre farm lying four miles south of Columbia has been rented for the department of animal husbandry. On this farm is maintained

stock which is used for instructional work during the school year and for which there is not room on the University farm. Some experiments are carried on here.

University Serum Farm:

See page 13.

THE TEACHING STAFF

Forty-four teachers give their time to the instruction of agricultural students in the strictly agricultural subjects. These men devote a portion of their time to making experiments and to extension work among the farmers of the state. This combination of duties places them in a position to teach most effectively because they are in close contact with the farmers while at the same time they are helping to solve the farm problems. Fourteen persons devote their entire time to extension teaching and demonstration in agriculture and home economics out in the state. In addition to this corps of teachers, there are twenty-seven teachers who give instruction to agricultural students in the fundamental sciences such as zoology, botany, chemistry, and physics, upon which sciences the practice of technical agriculture is founded.

THE COURSE OF STUDY

The fundamental idea in planning the course of study at the College of Agriculture is to train men to be farmers, teachers and investigators in the broadest sense of the term. The course is founded on the belief that to be a successful farmer, a successful teacher of agriculture, a successful investigator of farm problems, or a practical writer on farm subjects, a man must first of all understand farming. He must be taught to see the application of every scientific fact to the actual practice of farming; he must be taught to realize that the whole scheme of agricultural education centers about the soil and its products. This is the idea upon which the course in agriculture at Missouri is built.

Undergraduate Instruction:

The undergraduate courses lead to the degree of Bachelor of Science in Agriculture. The College of Agriculture of the University of Missouri is fortunate in being organized as a division of a University comprising a College of Arts and Science, a School of Education, a School of Engineering, a School of Mines and Metallurgy, a School of Law, a School of Journalism, a School of Medicine, and a School of Commerce. Coordinating with the work of the University, altho independent from it, is the Missouri Bible College. So the student in agriculture, if he desires, may broaden his course by electing subjects from any of these other divisions of the University. His associations while at the college bring him in contact with men in other divisions whose purposes and views of life are widely divergent. Because of these associations a graduate of

the College of Agriculture leaves the University a broader man, with a better understanding of the world in which he is to live and of which he is to form an important part. Because of his breadth of view, and because of his studies outside the technical field of agriculture, he is better fitted for a higher citizenship and for a higher place in community life than is possible where opportunities are more restricted. Scholarships and prizes are available to students who meet certain requirements. For particulars in regard to these undergraduate scholarships and prizes, see pages 83 to 93 of the University of Missouri catalog for 1914-15.



Training future live stock judges.

Graduate Instruction:

Graduate instruction in agriculture is offered in the graduate school of the University of Missouri. The student cannot enter the Graduate School until he has completed the undergraduate course of study at the College of Agriculture of the University of Missouri or any institution of equal standing. The graduate course leads to the degrees of Master of Arts and Doctor of Philosophy. The College of Agriculture believes that those who lead in the development of agricultural life and thought must have the best training available. For those who intend to teach in a university or an agricultural school or who expect to take up investigational work in an experiment station, a graduate course of study is considered highly important. This is because of the better preparation for leadership which the graduate course gives. The faculty of the College of Agriculture offers in the graduate school of the University complete and adequate facilities for graduate instruction. A large number of graduate students of agriculture are enrolled in the Graduate School. These men are being specially trained to take the more responsible positions of leadership in agricultural thought and work. To encourage graduate study the University offers scholarships paying \$200 a year and fellowships paying \$400. Graduates of colleges are eligible for these agricultural scholarships and fellowships.

Further information in reference to the scholarships and fellowships may be had by writing to the Dean of the Graduate Faculty, University of Missouri, Columbia, Missouri.

STUDENT ORGANIZATIONS

The College of Agriculture recognizes the fact that a part of each student's training should be the development of his powers of administration and self-government. It is a part of the training of good citizenship. In pursuance of this idea, student organizations have been encouraged and every student is urged to affiliate himself with some organization or some movement in which students exercise their capacity to successfully conduct important and complicated enterprises without the directing influence of the officers of the college. Many successful organizations are conducted by agricultural students.

The Agricultural Club:

This union of all agricultural students in the University has been a power for good in promoting college spirit and loyalty to the College of Agriculture. The organization has worked unselfishly for the best good of all and is worthy of the active support of every agricultural student.

The College Farmer:

The agricultural college paper is published monthly. Its excellent management deserves great credit for the uniformly high character of the publication. The purpose of the paper is to present reliable articles on agricultural subjects and to bring to the attention of the farmers and others the work of the college and station. The editors and managers are elected annually by the Agricultural Club.

The County Fair:

Once a year the agricultural students give a county fair. This event calls for the display of considerable ability in organization and is useful in stimulating the ingenuity of individual students. A live stock, agricultural, and horticultural display divides attention with more recreative features provided by the students.

The Commencement Horse Show:

During Commencement Week each year the students in the College of Agriculture hold a horse show. The best show horses in Central Missouri are exhibited. Not only is this an excellent opportunity for the students to examine the finest horses in the state and to know the breeders and owners, but in addition the responsibility for the successful management of the show gives them valuable training. The show is held on the athletic grounds of the University. An advisory council made up largely of Columbia business men assist in the management of this show, which is self-supporting.

The Farmers' Forum:

This society was organized among agricultural students to promote and improve the ability of the members to speak clearly and logically

before an audience of practical farmers and business men. The membership is limited to twenty men. The work consists of prepared talks and of extemporaneous short talks. Critics are appointed each meeting from the members or from the faculty whose work it is to criticise the exercises from the standpoint of a hearer in a large audience. Meetings are held once in two weeks.



At the County Fair, 1915. One of the striking floats of the parade and a general view of the "zone." A real old-fashioned good time for all.

Barn Warming:

A real old-fashioned barn warming is held by the students in the College of Agriculture each fall. This barn warming, formerly held in the loft of the horse barn but now in Rothwell Gymnasium because of lack of space in the former place, is in the nature of an autumn festival.

Horticultural Seminar:

This organization is composed of graduates and undergraduates who are specializing in horticulture. Its meetings are held twice a month and are given over to the reading of scientific papers and informal discussions dealing with horticultural problems.

The Grange:

The interest and responsibilities of the agricultural student do not end with his immediate surroundings in college. He justly feels that he owes a duty to the farming class to which he belongs. In the Grange faculty and students meet and discuss the broader phases of agriculture which are of interest to them as farmers rather than students.

Honorary Societies:

Three honorary societies whose membership is based on high scholarship and character are maintained by the students of the College of Agriculture. In two of them, the Alpha Zeta and the Gamma Sigma Delta, membership is extended to the entire student body. In the third, the Sigma Kappa Zeta, membership is limited to students specializing in horticulture. It is an honor to be elected to membership in these societies.

PRACTICAL EXCURSIONS

In order to bring students into closest possible touch with the field of practical agriculture, different departments annually arrange for a number of excursions, mainly to the farms of successful farmers and breeders. The practical excursion, therefore, becomes an important factor in helping the college to impress upon the student the close connection between the work of the classroom and laboratory and the practical field of agriculture.

MEDICAL ATTENTION FOR STUDENTS

Regularly enrolled students in the University who carry not less than 12 hours of University work have free medical attention and hospital care, except those in the employ of the University who hold rank higher than that of undergraduate student assistant. In the dispensary at Parker Memorial Hospital students may consult with and have treatment by the members of the staff of the department of clinical medicine and surgery. The attention of the same staff physicians is available to students who have to be admitted to the hospital. When surgical operations are required a moderate charge is made by the hospital for operation. No fees are paid to the staff physicians in any case. The amount of the charge in each surgical case is determined by the superintendent of the hospital in accordance with certain general rules laid down by the Board of Curators. Under extraordinary conditions a small fee may be charged by the hospital for medical services.

A general physical examination is required of all new students. It is carried on in the hospital at specially appointed times by the members of the department of clinical medicine and surgery. Vaccination is required of all students.

For additional information regarding the care of students' health in the University of Missouri consult the annual catalog, page 81.



Some of the high class show horses at the Commencement Horse Show. There are three stables of Missouri's finest light horses located at Columbia, which, thru the courtesy of their owners are available to students for practice judging.

CULTURAL ADVANTAGES

Each year the University brings to Columbia talented lecturers, musicians and artists. A series of musical concerts under the auspices of Phi Mu Alpha, a musical society, has become an established part of the season's attractions. Several good plays are presented each year in the University Auditorium. The University assemblies held at frequent

intervals are addressed by noted men from all parts of the United States and occasionally by men from abroad. Farmers' Week and Journalism Week draw to the University men of note in the fields of agriculture and journalism. The University art exhibits display some of the finest collections of paintings and art work that can be had outside of the principal art centers.

Students who are especially interested in a musical training will find ample facilities for such training in the University band, glee club, orchestra, or chorus. The city of Columbia, outside of the University has some of the best teachers of vocal and instrumental music that can be found anywhere.



Judging sheep in the new Stock Judging Pavilion. Part of the men are writing the reasons for placing the sheep after having examined them.

RELIGIOUS LIFE AT THE UNIVERSITY

More than 72 per cent of all the students registered in the University of Missouri are church members and about 18 per cent more have church preferences. There are more ministerial students in the University of Missouri in proportion to its enrollment than in any other state university. Reverend Hugh Black recently stated, after delivering a series of religious addresses at the University of Missouri, "I have found a greater appreciation of religious matters and interest in them in the University of Missouri than in the denominational institutions that I have visited." The members of the University faculty are active in the church life of the community. The leading religious denominations in

Columbia have efficiently organized the student work of their churches. Several of the churches employ assistant student pastors.

Young Men's Christian Association:

The students of the University have always taken an active interest in the Young Men's Christian Association of the University. This Association owns a \$60,000 stone building devoted to the religious and social life of the students of the University. In the building are rooms for the accommodation of eighty students; in addition there are quarters for the secretary and other officers of the association; an auditorium for meetings; and various committee rooms used by the student organizations. New students are advised to confer with the secretary of the Young Men's Christian Association in reference to finding suitable places to board and room. Students desiring employment should also consult the secretary in charge of this work in the Y. M. C. A. Building. When you arrive in Columbia report first to the Y. M. C. A. Building where you will find help in securing a satisfactory location for board and room.

COLUMBIA A DESIRABLE STUDENT HOME

Columbia is an ideal college town. The residents realize that the state of Missouri has entrusted them with the sacred responsibility of providing a clean, wholesome environment for her sons and daughters during the four or more years of their college life. There are no saloons in Columbia or Boone county and the regulations in regard to the liquor traffic are rigidly enforced. The city board of health is diligent in enforcing the health ordinances. The fire department looks to the proper equipment of all rooming and boarding houses so that the danger from fire is practically eliminated. The water supply is the best that deep-well service can afford.

Columbia is a city of broad, paved streets, of beautiful shade trees, and home-like dwellings. The houses in the University section are built with an eye to beauty, comfort, and utility. In these houses, the homes of citizens, students in the College of Agriculture make their homes. There are two dormitories for men but these have a total capacity of only 140 students. The University Y. M. C. A. Building accommodates eighty, and the Missouri Bible College building forty in addition.

AGRICULTURE AND HOME ECONOMICS FOR WOMEN

Attention is called to the special curriculum in agriculture and home economics (see p. 31) which has been arranged for the benefit of young women in the country who desire to have a knowledge of modern methods of agriculture. This course is correlated with the work in home economics and it is possible to secure a very complete training in the latter subject while pursuing courses in agriculture. The agricultural subjects offered to women are largely in the departments of soils, farm crops, horticulture, botany, and poultry husbandry.

REQUIREMENTS FOR ADMISSION

Candidates for admission to the College of Agriculture should write early to the Dean of the University Faculty, University of Missouri, Columbia, Missouri, for blanks and detailed information concerning admission to the University.

High school subjects which are required for admission are designated in terms of "units," a unit being the equivalent of a subject pursued five periods a week for at least thirty-six weeks, four units constituting a year's work.



Students in the bee-keeping class extracting honey. The importance of proper marketing methods is recognized.

Fifteen units, the equivalent of a four years' high school course, are required for admission as a regular student to the College of Agriculture. Three units in English and one unit in mathematics are fixed requirements. The remaining eleven units may be selected from the list given on page 45 of the University catalog. In preparation for admission to the College of Agriculture, students are strongly urged to take at least one laboratory science.

Entrance Conditions:

Applicants for admission who are deficient in a small portion of the requirements may be admitted conditionally at the discretion of the dean of the University faculty.

Students from accredited schools will not be admitted, subject to a condition, unless they are graduates of such schools.

Entrance conditions to the College of Agriculture must be removed within one year from the date of entrance. Students should consult with the dean of the University faculty regarding the removal of such conditions.

SUBJECTS ACCEPTED FOR ADMISSION

The subjects in which entrance units may be offered, the minimum and the maximum number of units that may be offered in each subject, and the number of units or hours required for each college or school of the University, are to be found on page 45 of the University catalog.

Admission by Examination:

Students who have had the equivalent of a high school training either by private study or by study in an unaccredited school may gain admission to the College of Agriculture by writing and passing the entrance examinations which are given at the opening of each semester. Permission to take the entrance examinations must be secured in advance from the dean of the University faculty.

Special Students:

Mature men and women may be admitted to the College of Agriculture for special study in such subjects as they are prepared to pursue with profit to themselves. Such students must be at least 21 years old. Special students are not candidates for degrees and cannot become such until they have fulfilled all requirements for admission. An application for admission as a special student should be made to the dean of the University faculty. If the dean approves the application he will issue the candidate an entrance card as a special student.

Admission from Junior Colleges:

All students who have graduated from accredited junior colleges in this or other states may enter the junior year of the College of Agriculture. If the student has taken work in science in the junior college he can generally complete the technical requirements in the College of Agriculture in approximately two years. Many Missouri students are embracing this opportunity to complete their education and secure instruction in agriculture.

Admission from Standard Colleges:

The curriculum of the College of Agriculture is so arranged that students who have completed their sophomore year in a standard college may secure credit for all the work done and these credits will be accepted for a part of the requirements for the degree of Bachelor of Science in

Agriculture. If such students have had considerable work in science in their college course, it is possible to complete the requirements for Bachelor of Science in Agriculture in two years. An increasingly large number of college students are taking advantage of this opportunity.



The home curing of meats is encouraged by the University. Students are taught to kill, cut up, and cure their own meats.

HOW TO ENTER THE COLLEGE OF AGRICULTURE

First. Write to the Dean of the University Faculty, University of Missouri, Columbia, Missouri, for a blank certificate for admission.

Second. When this blank is received take it to the principal of the high school (or other school) in which your credits were received, tell him that you wish to enter the College of Agriculture of the University of Missouri and ask him to fill out the blank.

Third. When the blank is properly filled out mail it to the Dean of the University Faculty, University of Missouri, Columbia, Missouri. You will then be notified that your credits are approved or that you will be required to take entrance examinations in certain subjects.

Fourth. Come to Columbia on September 13, 1915, (or January 31, 1916, if you wish to start with the opening of the second semester). Plan to be in Columbia before the second registration day at the latest.

Fifth. Go to Academic Hall on the West Campus where you will receive instructions in regard to registration.

Sixth. For further information in regard to entrance write to the Dean of the University Faculty, University of Missouri, Columbia, Missouri.

FEES AND DEPOSITS

Tuition is free in all divisions of the University to students who are residents of the State of Missouri. Non-residents of the state are required to pay a tuition fee of \$10 a semester, except in the Graduate School. A library, hospital, and incidental fee of \$12 a semester is required of all students, except those in the short winter courses in agriculture, and those especially exempt by law or by rules of the Curators of the University of Missouri. A fee of \$2 is charged for each diploma and a fee of \$1 is charged for each certificate given.

In laboratory courses fees and deposits are required to pay for material used, depreciation of equipment and damage to University property. In some laboratory courses only a fee is required, in some both fee and a deposit, and in others only a deposit. For full statement of laboratory fees and deposits see pages 73 to 76 of the University of Missouri catalog.

In the military department, where all men students must take instruction during their freshman or sophomore year, a deposit of \$10 for each dress uniform and of \$5 for each service uniform is required. For details see page 420 of the annual catalog.

LIVING EXPENSES

The necessary expenses of living for one year are estimated in the table below:

Room rent.....	\$ 35 to \$ 54
Board for 36 weeks.....	115 to 144
Books, stationery, and supplies.....	25 to 40
Laundry.....	15 to 30
Library, hospital, and incidental fees.....	24 to 24
Incidentals.....	25 to

The above estimate does not include laboratory fees and deposits. The left-hand column shows what is considered the minimum expense. The estimate of the room rent in this column is based on the highest charge for room rent in the University dormitories and the estimate for board is based on the average price of a meal at The Commons. The cost of books, laundry, and incidentals is considered the minimum on which a student can comfortably go thru the freshman year.

The estimate of board and room in the right-hand column is based on average cost of board and room at private residences in Columbia. The estimate of books, laundry and incidentals is considered liberal.

It might be possible for a student to live comfortably on less than the smallest sum indicated above. It is also entirely possible for a student to exceed the expenditures listed in either column. The incidental item in a student's expense account is probably subject to more variation than any other item.

PAYING ONE'S WAY THRU THE UNIVERSITY

It is variously estimated that from 20 to 30 per cent of the students in the College of Agriculture are paying all or a considerable portion of their expenses by working while attending the University. A limited number of students work for the various departments of the college in caring for the live stock, assisting in the dairy department, working for the agricultural experiment station, and giving assistance in pruning, spraying, and planting on the horticultural grounds. About two hundred students were given a greater or less amount of work in these various departments last year.

Students also find employment in Columbia caring for furnaces, waiting on tables, clerking, and in numerous other ways.

DEGREES

The degree of Bachelor of Science in Agriculture is conferred upon all students completing the four-year curriculum in agriculture for men and the four-year curriculum in agriculture and home economics for women.

The degree of Master of Forestry is conferred upon all students completing the five-year curriculum in forestry, and the degree of Bachelor of Science in Forestry may also be conferred under conditions mentioned below.

The degree of Master of Arts is conferred upon students by the Graduate School for one year's graduate study in any of the departments of agriculture. (See announcement of the Graduate School.)

The degree of Doctor of Philosophy is conferred upon students in the Graduate School who have devoted not less than three years of advanced study to some special branch and have attained exceptional proficiency in original research.

CURRICULA IN THE COLLEGE OF AGRICULTURE

A. Four-year curriculum in agriculture for men, leading to the degree of Bachelor of Science in Agriculture (B. S. in Agr).

B. Four-year curriculum in agriculture and home economics for women, leading to the degree of Bachelor of Science in Agriculture (B. S. in Agr.).

C. Five-year curriculum in forestry, leading to the degree of Master of Forestry (M. F.). Upon the completion of the first four years of this curriculum the degree of Bachelor of Science in Forestry (B. S. in F.) is conferred.

D. Two-year Winter Course in Agriculture.

E. Short Course for Women.

F. Special Creamerymen's Course.

G. A Farmers' Short Course in Agriculture is offered each year in January at Columbia and several Branch Short Courses in Agriculture are given in different localities in Missouri.

A. FOUR-YEAR CURRICULUM IN AGRICULTURE FOR MEN

Required Work:

The prescribed courses and the order in which they are required is indicated in the four-year curriculum in agriculture for men, page 30. All candidates for the degree of Bachelor of Science in Agriculture must satisfactorily complete 124 hours, including the requirement in military science. All candidates for the degree must have completed the hours (81) prescribed in the curriculum, page 30, and in addition 26 hours elected from technical agricultural courses and 17 hours from any subjects offered in the University of Missouri or other standard college. Technical agricultural subjects are all courses now being offered in the departments of animal husbandry, farm crops, farm management, horticulture, poultry husbandry, soils, and veterinary science; courses 1a and b, 109a and 110b in the department of entomology, and all courses in rural economics now offered and numbered 100 or above.

Candidates for graduation who matriculate without having adequate farm experience are required to devote the equivalent of two summer vacations to practical work on a farm. Beginning September, 1916, all students will be required to have one year of practical farm experience before the degree will be conferred. All students are advised to secure this experience before entering the College of Agriculture. The college cannot undertake to provide the means for satisfying this requirement.

Advisers:

It is recommended that during the first semester of the junior year each student in consultation with the dean choose some member of the faculty as his adviser for the purpose of consultation in regard to the proper selection and grouping of elective courses.

Regulations, Grades, and Credits:

The general regulations governing grades and credits (see annual catalog) apply to all courses in this college. Students of exceptional

ability may shorten the period of residence by superior scholarship. Students who in any semester fall behind in more than 42 per cent of the hours in which they are registered at the end of that semester, or who fall more than 10 hours behind the total number of hours for which they have been registered up to that time, exclusive of the first semester of the freshman year, will be dropped from the college.

All students who have been dropped under this rule are permitted to return after one semester.

FOUR-YEAR CURRICULUM IN AGRICULTURE FOR MEN

FRESHMEN*

Group I

<i>First Semester</i>		<i>Second Semester</i>	
Animal husbandry, 1a.....	3 hrs.	Chemistry, 25b.....	5 hrs.
Botany, 1a.....	5 hrs.	English, 1.....	2 hrs.
Chemistry, 4a or 6a.....	5 hrs.	Horticulture, 1b.....	3 hrs.
English, 1.....	2 hrs.	Zoology, 1b.....	5 hrs.
Military science and tactics.....	1 hr.	Military science and tactics.....	1 hr.
<hr/>		<hr/>	
16 hrs.		16 hrs.	

Group II

<i>First Semester</i>		<i>Second Semester</i>	
English, 1.....	2 hrs.	Animal husbandry, 1b.....	3 hrs.
Horticulture, 1a.....	3 hrs.	Botany, 1b.....	5 hrs.
Physics, 1a.....	5 hrs.	Chemistry, 4b or 6b.....	5 hrs.
Zoology, 1a.....	5 hrs.	English, 1.....	2 hrs.
Military science and tactics.....	1 hr.	Military science and tactics.....	1 hr.
<hr/>		<hr/>	
16 hrs.		16 hrs.	

SOPHOMORES

Group I

<i>First Semester</i>		<i>Second Semester</i>	
Dairy husbandry, 1a.....	3 hrs.	Agricultural chemistry, 1b.....	3 hrs.
Farm crops, 1a.....	5 hrs.	Botany, 3b.....	3 hrs.
Geology, 2a.....	3 hrs.	Entomology, 2b.....	3 hrs.
Organic chemistry, 5a.....	3 hrs.	Physics, 1b.....	5 hrs.
Elective.....	2 hrs.	Elective.....	2 hrs.
<hr/>		<hr/>	
16 hrs.		16 hrs.	

*During the freshman, sophomore, and junior years students are divided into two groups. The subjects taken by each group are the same but are taken in different order.

Group II

<i>First Semester</i>		<i>Second Semester</i>	
Botany, 3a.....	3 hrs.	Dairy husbandry, 1b.....	3 hrs.
Chemistry, 25a.....	5 hrs.	Farm crops, 1b.....	5 hrs.
Entomology, 2a.....	3 hrs.	Geology, 2b.....	3 hrs.
Elective.....	5 hrs.	Organic chemistry, 5b.....	3 hrs.
		Elective.....	2 hrs.
<hr/>		<hr/>	
16 hrs.		16 hrs.	

JUNIORS

Group I

<i>First Semester</i>		<i>Second Semester</i>	
Animal husbandry, 100a.....	3 hrs.	Animal husbandry, 101b, or farm crops, 104b, or horticulture, 4b.....	3 hrs.
Botany, 100a, or veteri- nary science, 1a.....	5 hrs.	Social science.....	5 hrs.
Soils, 1a.....	5 hrs.	Elective.....	7 hrs.
Elective.....	2 hrs.		
<hr/>		<hr/>	
15 hrs.		15 hrs.	

Group II

<i>First Semester</i>		<i>Second Semester</i>	
Agricultural chemistry, 1a	3 hrs.	Animal husbandry, 101b, or farm crops, 104b, or horticulture, 4b.....	3 hrs.
Animal husbandry, 100a.....	3 hrs.	Soils, 1b.....	5 hrs.
Botany, 100a, or veteri- nary science, 1a.....	5 hrs.	Social science.....	5 hrs.
Elective.....	4 hrs.	Elective.....	2 hrs.
<hr/>		<hr/>	
15 hrs.		15 hrs.	

SENIORS

<i>First Semester</i>	<i>Second Semester</i>
Elective	Elective

B. FOUR-YEAR CURRICULUM IN AGRICULTURE FOR WOMEN

The curriculum in agriculture for women emphasizes those phases of agricultural instruction of special significance to women. The agricultural requirements are chiefly in plant subjects, in dairy husbandry,

in poultry farming, and in home economics. The degree of Bachelor of Science in Agriculture (B. S. in Agr.) is conferred upon completion of the required work.

Required Work:

The student must complete a total of 120 hours in addition to the requirement in physical training. Of the total number of hours, 56 hours are fixed requirements as shown in the printed curriculum, 36 hours are major electives to be selected as indicated below, and 28 hours are free electives.

FRESHMAN

<i>First Semester</i>		<i>Second Semester</i>	
Chemistry, 4a or 6a.....	5 hrs.	Chemistry, 25b.....	5 hrs.
English, 1a.....	5 hrs.	Home economics, 1b.....	5 hrs.
Horticulture, 1a and 2a.....	5 hrs.	Botany, 1b.....	5 hrs.
Physical training.....	1 hr.	Physical training.....	1 hr.

SOPHOMORE

<i>First Semester</i>		<i>Second Semester</i>	
Chemistry, 5a.....	3 hrs.	Botany, 3b.....	3 hrs.
Horticulture, 102.....	2 hrs.	Dairying, 1b.....	3 hrs.
English.....	2 hrs.	Horticulture, 102.....	2 hrs.
Physiology, 1a.....	5 hrs.	English.....	2 hrs.
Home economics, 10a.....	2 hrs.	Home economics, 11b.....	2 hrs.
Elective.....	1 hr.	Elective.....	3 hrs.

JUNIOR

<i>First Semester</i>		<i>Second Semester</i>	
Elective.....	15 hrs.	Elective.....	15 hrs.

SENIOR

<i>First Semester</i>		<i>Second Semester</i>	
Elective.....	15 hrs.	Elective.....	15 hrs.

The student will be required to select a major of 36 additional hours in any one of the groups designated below:

1. Plant group, including botany and horticulture.
2. Dairy husbandry group, including dairy husbandry and animal husbandry.

3. Home economics group, including home economics and design.

The remaining 26 hours may be selected from other courses in the College of Agriculture or in the College of Arts and Science.

C. FIVE-YEAR CURRICULUM IN FORESTRY

The five-year curriculum in forestry educates and trains men for the profession of forestry. Graduates are fitted to devise and execute plans for the utilization and management of woodlands and forests, both private and public.

Nature of the Curriculum:

The first three years of work are devoted primarily to the sciences underlying the profession, altho an early introduction is given to the principles and purposes of forestry. Fundamental principles are first studied in the University, then the application of these principles is carried out on the University forests in the Ozark region. There are six of these forests with an aggregate area of 50,000 acres. Their entire administration is in the hands of a member of the faculty in the department of forestry. During the Summer Session of the University a forest camp is conducted in the Ozarks for eight weeks.

During the last eight weeks of the spring semester of the fifth year of the course students will make detailed plans for the management and logging of some allotted portion of these forests.

Since most of the subjects outlined in the first two years of the curriculum are pursued in the College of Arts and Science, students who have completed 60 credit hours in that college may be admitted in forestry at the beginning of the third year. It is possible for graduates of collegiate institutions to complete the technical forestry courses and receive the master's degree in two years. The summer courses will be required of these men after one year's work at Columbia. Their undergraduate work should include the following courses:

Two years of college botany and at least one college course in chemistry, geology, economics, American government, physics, zoology, mathematics thru trigonometry, and a reading knowledge of German.

Degrees:

The degree of Master of Forestry is conferred on those students who have fulfilled all the requirements of the five-year curriculum. The degree of Bachelor of Science in Forestry is conferred on those students who have fulfilled all the requirements in the curriculum in forestry at the end of the fourth year.

FIRST YEAR			
<i>First Semester</i>		<i>Second Semester</i>	
English, 1a.....	3 hrs.	English, 5b.....	3 hrs.
German, 1a.....	5 hrs.	German, 2b.....	5 hrs.
Chemistry, 6a.....	5 hrs.	Chemistry, 5b.....	3 hrs.
Forestry, 10a, dendrology....	3 hrs.	Botany, 1b.....	5 hrs.
Military science and tactics.....	1 hr.	Military science and tactics.....	1 hr.

SECOND YEAR

First Semester

Mathematics, 3a.....	5 hrs.
Physics, 1a.....	5 hrs.
Forestry, 11, forest seeds and seedlings.....	1 hr.
Botany, 100a.....	5 hrs.

Second Semester

Mathematics, 4b.....	5 hrs.
Geology, 1b.....	5 hrs.
Forestry, 11, forest seeds and seedlings.....	1 hr.
Botany, 4b.....	3 hrs.
Botany, 101b, ecology.....	2 hrs.

THIRD YEAR

First Semester

Forestry, 120, silviculture..	5 hrs.
Zoology, 1a.....	5 hrs.
Civil engineering, 102a.....	3 hrs.
Geology, 6a.....	3 hrs.

Second Semester

Forestry, 120, silviculture..	5 hrs.
Entomology, 105b.....	2 hrs.
Mechanical drawing, 7b....	2 hrs.
Forestry, 121b, forest men- suration.....	3 hrs.
Forestry, 122b, forest en- gineering.....	5 hrs.

SUMMER CAMP

Summer Session

Forestry, 124s, silvicultural praxis.....	2 hrs.
Forestry, 125s, mensuration....	3 hrs.
Forestry, 126s, lumbering.....	3 hrs.

FOURTH YEAR

First Semester

Botany, 2a.....	3 hrs.
Economics, 1a.....	5 hrs.
Topographic drawing, 10a..	1 hr.
Forestry, 127a, forest prod- ucts.....	2 hrs.
Forestry, 128a, lumber trade.....	1 hr.
Forestry, 129a, forest eco- nomics.....	3 hrs.
Forestry, 130a, seminary in silviculture.....	2 hrs.

Second Semester

Botany, 108b, tree diseases..	3 hrs.
American government, 2b....	5 hrs.
Civil engineering, 104b.....	3 hrs.
Forestry, 132b, wood tech- nology.....	4 hrs.
Forestry, 133b, seeding and planting.....	2 hrs.

FIFTH YEAR

First Semester

Forestry, 200, policy and law.....	3 hrs.
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Second Semester

Forestry, 200, policy and law.....	3 hrs.
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Forestry, 201, forest organization.....	3 hrs.	Forestry, 201, forest organization.....	3 hrs.
Forestry, 202a, forest valuation.....	3 hrs.	Forestry, 206b, forest history.....	1 hr.
Elective:		Forestry, 207b, forest administration.....	1 hr.
Forestry, 203a, lumbering.....	2 hrs.	Forestry, 208b, forest plans..	8 hrs.
Forestry, 205a, care of trees.....	3 hrs.		
Animal husbandry, 104a	2 hrs.		

D. TWO-YEAR WINTER COURSE IN AGRICULTURE

A shorter course in agriculture begins November 1 and continues for four months during the winter. This course trains men for successful farming. The Two-Year Winter Course offers the largest amount of practical instruction that it is possible to give in the time scheduled. Any person more than 16 years old may enter this course without examination. All persons completing the subjects in the schedule following will be awarded a certificate certifying that they have completed all the requirements of the Two-Year Winter Course in Agriculture. A special announcement is published describing the plan and purpose of this course and may be had upon application to the Superintendent of Short Courses, College of Agriculture, Columbia, Missouri.

The following schedule of studies is offered in the years and during the terms indicated:

FIRST YEAR

<i>First Term</i>	Lecture hours	Laboratory hours
Cereal crops and grain judging.....	21	21
Farm dairying or plant propagation.....	14	14
Feeding and management of live stock.....	35	---
Live stock judging.....	---	21
General poultry raising.....	21	---
and any one of the subjects below		
Woodworking.....	---	21
Forging.....	---	21
Parliamentary practice.....	---	14
Rural economics.....	21	---
<i>Second Term</i>		
Prevention and treatment of animal diseases.....	14	14
Soil tillage.....	14	7

Animal breeding.....	21	---
Farm dairying or plant propagation.....	14	14
Live stock judging.....	---	21
and any two of the subjects below		
Woodworking.....	---	21
Forging.....	---	21
Landscape gardening.....	21	---
Commercial orcharding.....	21	---

SECOND YEAR

<i>First Term</i>	Lecture hours	Labora- tory hours
Infectious diseases, medicine and surgery.....	14	14
Injurious insects.....	14	7
Farm accounts.....	---	14
Soil fertility.....	21	7
and three of the courses below		
Rural economics.....	21	---
Parliamentary practice.....	---	14
Breeds of live stock.....	21	---
Farm management.....	14	---
Farm poultry practice.....	14	---
Farm construction methods.....	14	14
Woodworking or forging.....	---	21

Second Term

Farm orchard and garden management.....	14	14
Milk production.....	21	---
Forage crops.....	14	7
and any four of the subjects below		
Advanced live stock judging.....	---	21
Advanced grain judging.....	---	21
Farm machinery.....	7	14
Soil management.....	21	---
Rural economics.....	21	---
Cutting and curing meats.....	---	21

E. SHORT COURSE FOR WOMEN

The Short Course for Women comprises seven weeks of work and is given during the months of November and December each winter. Every facility is provided for securing, in the time given, the largest possible amount of practical information relating to the care and management

of the home and to those agricultural subjects which have a more or less direct bearing upon the household.

The following subjects are offered: Food work; hygiene and sanitation; sewing; laundry work; home care of the sick; propagation and cultivation of plants; orcharding and small fruits; landscape gardening; poultry husbandry; farm dairying.

Students are permitted to elect any of these subjects.

There is no requirement for entrance to this course except that a student must be 16 years old or older. The total expenses of the course need not exceed \$60. A probable estimate of expenses is as follows:

Fees.....	\$ 9.50
Room (with room-mate).....	10.00
Board.....	30.00
Laundry.....	4.00
Total.....	<hr/> \$53.50

F. SPECIAL CREAMERYMEN'S COURSE

Instruction in creamery work has been given each year since the dairy department was established in 1901. The growing interest in this industry in Missouri makes it advisable to increase the time devoted to this subject and to add instruction in ice cream making. The Special Creamerymen's Course is offered for the benefit of those who wish to fit themselves for creamery work or to operate large private dairies. It covers seven weeks' time, beginning January 10, 1916. It ends February 25. The laboratory fee for this course is \$5.

STATEMENT OF STUDIES

	LESSONS
Elements of dairying.....	14
Milk production.....	21
Testing milk, cream, butter.....	20
Dairy bacteriology.....	10
Creamery butter making.....	55
Ice cream making.....	20

G. FARMERS' SHORT COURSE

In January each year the college offers a short course in agriculture for farmers in connection with the Farmers' Week program arranged in cooperation with the State Board of Agriculture. In this course special lectures and demonstrations in soils, farm crops, animal husbandry, dairying, horticulture, farm management, forestry, rural economics, veterinary science, and poultry farming are given in the classrooms,

laboratories, and live stock pavilion belonging to the University. Two thousand eight hundred and ten farmers were enrolled for this course in 1915. The course will be given again in January, 1916.

STATEMENT OF COURSES

Courses for underclassmen are indicated by numbers below 100; courses for upperclassmen and graduates, numbers 100-199; courses primarily for graduates, numbers 200-299. Those designated by a number with the letter *a* attached, thus: 100a, 200a, are given the first semester only. Those designated by the letter *b*, thus: 100b, 200b, are given the second semester only. Those designated by the letter *s*, thus: 5s, are given during the Summer Session. Those designated merely by a number are continuous courses and are given both semesters. Arabic numerals in parenthesis indicate the number of hours' credit a semester.

Schedule of hours, days, and rooms follows the description of the course. The Roman numerals I, II, etc., indicate the number of sections of a class. The following abbreviations are used in designating the buildings in which classes will meet: *Ac.*, Academic Hall; *Ag.*, Agricultural Building; *Biol.*, Biology Building; *Ch.*, Chemistry Building; *Com.*, Commerce Building; *Dairy*, Dairy Building; *Eng.*, Engineering Building; *Geol.*, Geology Building; *G. H. B.*, Gordon Hotel Building; *Hort.*, Horticultural Building; *L. S. P.*, Live Stock Judging Pavilion; *Mach.*, Machinery Building; *Phys.*, Physics Building; *Poul.*, Poultry Building; *Sch.*, Schweitzer Hall; *Sw.*, Switzler Hall; *Vet.*, Veterinary Building.

Where no hours or days are indicated they are to be arranged later by the teacher.

Courses listed below are in the four-year curriculum in agriculture for men, four-year curriculum in agriculture for women, and the five-year curriculum in forestry. For complete description of these courses see the annual catalog.

AGRICULTURAL CHEMISTRY

1a and b. **Agricultural Chemistry.** *First semester:* I 3 F in 109 Sch., 1-3 M W in 115 Sch.; II 3 F in 21 Sch., 1-3 T Th in 115 Sch. *Second semester:* I 11 F in 109 Sch., 10-12 M T in 115 Sch.; II 11 F in 21 Sch., 1-3 M W in 115 Sch. (3) Mr. MOULTON.

101a and b. **Advanced Agricultural Chemistry.** 4 T in 109 Sch; laboratory periods to be arranged. (3 or 5) Mr. TROWBRIDGE; Mr. MOULTON; Mr. HAIGH.

102a. **Slaughtering of Domestic Animals, and Cutting and Curing of Meats.** 1-4 T Th in 22 Sch. (2) Mr. TROWBRIDGE.

201a and b. **Seminar.** 4 M in 109 Sch. (1) Mr. TROWBRIDGE.

202a and b. **Research in Agricultural Chemistry.** Credit hours to be arranged. Mr. TROWBRIDGE; Mr. MOULTON; Mr. HAIGH; Mr. PALMER.

203a. **Chemistry of the Proteins.** Lectures and recitations three times a week. (3) Mr. TROWBRIDGE.

204a. **Physiological Chemistry of the Domestic Animal.** 3 T Th in 109 Sch.; laboratory period to be arranged. (3) Mr. TROWBRIDGE; Mr. PALMER.

AGRICULTURAL ENGINEERING

1a. **Farm Buildings.** 8 T Th in 209 Ag., 1-3 W F in 1 Ag. (4) Mr. KELLEY.

2b. **Farm Machinery.** 9 T Th in 209 Ag., 1-3 W in Mach. (3) Mr. KELLEY.

3a or b. **Special Investigations.** (2) or (3) Mr. KELLEY.

4a. **Construction Methods.** 1-3 twice a week in Mach. (2) Mr. KELLEY.

MANUAL ARTS

12a or b. **Woodworking and Forging.** 10-12 M W F. (2) Mr. GRIFFITH.

131a. **House Framing.** 8-12 S. (2) Mr. GRIFFITH.

MECHANICAL ENGINEERING

130b. **Farm Motors.** (2) Mr. WHARTON.

CIVIL ENGINEERING

103a. **Farm Surveying and Drainage.** 1-4 M W F in Sw. (3) Mr. WILLIAMS.

136b. **Cement and Concrete Construction.** (1) Mr. SPALDING.

158b. **Rural Sanitation.** 11 M in 211 Eng. (1) Mr. McCAUSTLAND.

159a. **Country Roads.** 8 M in 211 Eng. (1) Mr. SPALDING.

ANIMAL HUSBANDRY

1a or b. **Breeds and Market Classes of Live Stock.** I 10-12 M W F in L. S. P.; II 1-3 M W F in L. S. P.; III 1-3 T Th, 8-10 S in L. S. P.; IV 8-10 M W F in L. S. P. (3) Mr. WEAVER; Mr. HUGHES; Mr. BENTLEY.

2a. **Breeds of Live Stock.** 11 M W F in 209 Ag. (3) Mr. ALLISON.

3b. **Beef Production.** 8 M W F in 209 Ag. (3) Mr. ALLISON.

4b. **Sheep Production.** 9 T Th in 209 Ag. (2) Mr. HACKEDORN.

5b. **Pork Production.** 8 T Th in 209 Ag. (2) or (3) Mr. WEAVER.

6b. **Horse Production.** 11 M W in 209 Ag. (2) Mr. TROWBRIDGE; Mr. HUGHES.

7b. **Advanced Live Stock Judging.** 1-3 M W. (2) Mr. HACKEDORN.

- 100a. **Animal Nutrition.** 8 M W F in 200 Ag. (3) Mr. ALLISON.
 101b. **Animal Breeding.** 10 M W F in 200 Ag. (3) Mr. TROWBRIDGE.
 102a. **Advanced Live Stock Judging.** (3) Mr. TROWBRIDGE; Mr. HACKEDORN.
 103b. **Stock Farm Management.** (2) Mr. TROWBRIDGE.
 104b. **Grazing.** Mr. ALLISON.
 200. **Seminar.** Mr. TROWBRIDGE; Mr. ALLISON; Mr. MUMFORD; Mr. WEAVER; Mr. HACKEDORN.
 201. **Experimental Feeding.** Mr. TROWBRIDGE; Mr. ALLISON; Mr. MUMFORD.
 202. **Research in Animal Husbandry.** Mr. TROWBRIDGE; Mr. ALLISON; Mr. MUMFORD.
 203. **Animal Breeding.** Mr. MUMFORD.
 204. **Animal Nutrition.** Mr. ALLISON.
 205. **Zoometry.** Mr. TROWBRIDGE.
 206. **Research in Stock Farm Management.** Mr. MUMFORD; Mr. TROWBRIDGE; Mr. ALLISON.

BOTANY

- 1a and b. **General Botany.** I 8 T Th in 106 Biol., 8-10 M W F in 103 and 107 Biol.; II 10 T Th in 106 Biol., 10-12 M W F in 103 and 107 Biol.; III 1 T Th in 106 Biol., 1-3 M W F in 103 and 107 Biol. (5) Mr. DURAND; Mr. LEWIS; Mr. REED; Miss KEENE; Miss MONROE; Mr. MORGAN; Miss ZILLES.
 3a and b. **General Bacteriology.** I 8 F in 106 Biol., 8-10 M W in 205 Biol.; II 2 F in 106 Biol., 1-3 M W in 205 Biol. (3) Mr. REED; Miss KEENE; Miss MUNDY.
 14b. **Morphology of the Seed Plants.** 1-3 M W F in 208 Biol. (3) Mr. LEWIS.
 100a. **Plant Physiology.** I 11 T Th in 106 Biol., 10-12 M W F in 2 Biol.; II 11 T Th in 106 Biol., 1-3 M W F in 2 Biol. (5) Mr. LEWIS; Miss KEENE.
 101b. **Plant Ecology.** 1-3 T Th in 206 Biol. (2) Mr. LEWIS.
 102a. **Plant Pathology.** 3 M in 102 Biol., 1-3 T Th in 209 Biol. (3) Mr. REED.
 103b. **Soil Bacteriology.** 1-4 T Th in 3 Biol. (3)
 106b. **Principles of Plant Breeding.** 9 T Th in 206 Biol. (3) Mr. REED.
 108b. **Diseases of Forest Trees.** 1-3 M W F in 209 Biol. (3) Miss KEENE.
 109b. **Diseases of Horticultural Plants.** 1-3 T Th in 209 Biol. (2) Mr. REED.
 110a. **Principles and Methods of Disease Control.** 1-3 W F in 209 Biol. (2) Mr. REED.

200. **Seminar.** (1) Mr. REED.

201. **Research.** Credit and hours to be arranged. Mr. DURAND;
Mr. LEWIS; Mr. REED.

CHEMISTRY

General Inorganic Chemistry. Courses 4a and b, or 6a and 6b as announced under Chemistry in the annual catalog.

25a and b. **Analytical Chemistry.** *First semester:* I 8 F in 3 Ch., 8-10 M T W Th in 2 and 3 Ch.; II 3 F in 3 Ch., 1-3 M W F, 8-10 S in 2 and 3 Ch. *Second semester:* I 8 F in 3 Ch., 8-10 M T W Th in 2 and 3 Ch.; II 10 F, 1-3 M T W Th in 2 and 3 Ch. (5) Mr. BROWN; Mr. BARKER; Mr. MUENCH.

15a and b. **Elementary Organic Chemistry.** I 2 M F in 3 Ch., 1-3 W in 12 and 15 Ch.; IV 3 M W in 3 Ch., 1-3 F in 12 and 15 Ch. (3) Mr. BLACK; Mr. YANCEY; Mr. CALVERT.

DAIRY HUSBANDRY

1a and b. **Elements of Dairying.** 11 M W, 10-12 T or Th in Dairy. (3) Mr. RINKLE; Mr. REED; Mr. REGAN; Mr. STANTON.

100b. **Milk Production.** 8 T Th S, 9-11 S in Dairy. (4) Mr. ECKLES; Mr. REGAN.

101. **Dairy Bacteriology.** 1-3 T Th in Dairy. (2) Mr. ECKLES; Mr. WERNER.

102a. **Cheese Making.** 8-12 S in Dairy. (2) Mr. RINKLE.

105b. **Dairy Manufactures.** 1-3 T Th in Dairy. (3) Mr. RINKLE; Mr. STANTON.

201. **Seminar.** 3 Th in Dairy. (1) Mr. ECKLES.

202. **Research in Dairy Husbandry.** Mr. ECKLES.

203. **Special Investigations in Composition of Milk.** Mr. PALMER.

204. **Dairy Bacteriology.** Mr. ECKLES.

205. **Dairy Manufactures.** Mr. RINKLE.

ENGLISH

1. **Composition and Rhetoric.** *First semester:* I 8 M W; II 8 T Th; III 10 M W; IV 10 T Th; V 10 M W; VI 10 T Th; VII 8 M W; VIII 8 T Th. *Second semester:* I 8 M W; II 9 M W; III 10 M W; IV 11 M W; V 8 M W; VI 8 T Th; VII 10 M W; VIII 10 T Th. (2) Mr. MILLER.

ENTOMOLOGY

2a and b. **Elementary Entomology.** 3 T Th in 8 Hort., 1-3 T, 1-3 Th, 1-3 M, 1-3 W in 15 Hort. (3) Mr. HASEMAN; Mr. HOLLINGER.

103a. **Elementary Morphology.** (2) Mr. HASEMAN.

- 104b. **Elementary Systematic Entomology.** (2) Mr. HASEMAN.
 105b. **Forest Entomology.** 11 T, 1-3 T in 15 Hort. (2) Mr. HASEMAN; Mr. HOLLINGER.
 109b. **Apiary Culture.** 3 T, 1-3 W in 3 Hort. (2) Mr. HASEMAN; Mr. HOLLINGER.
 110b. **Advanced Economic Entomology.** (3) Mr. HASEMAN; Mr. HOLLINGER.
 111a. **Morphology, Histology, and Delevelopment of Insects.**
 200. **Research.** Mr. HASEMAN.
 201. **Seminar.** (1) Mr. HASEMAN; Mr. HOLLINGER.

FARM CROPS

- 1a and b. **Farm Crops.** I 8 T Th, 10 F, 10-12 M W in 200 Ag.; II 8 T Th, 10 F, 10-12 T Th in 200 Ag. (5) Mr. HUTCHISON; Mr. HACKLEMAN; Mr. McDONALD; Mr. EVANS.
 2b. **Grain Judging.** II T, 1-3 M W in 16 Ag. (3) Mr. HACKLEMAN; Mr. McDONALD.
 100a. **Field Crop Management.** 10 T Th in 209 Ag. (2) Mr. HUTCHISON.
 101a. **Cereal Crops.** (4) Mr. HUTCHISON; Mr. McDONALD.
 102a. **Forage Crops.** (3) Mr. HUTCHISON; Mr. HACKLEMAN.
 103b. **Fiber Crops.** 10 T Th in 202 Sch. (2) Mr. EVANS.
 104b. **Field Crop Improvement.** 11 M F, 10-12 W in 209 Ag. (3) Mr. HUTCHISON.
 105. **Special Problems.** Mr. HUTCHISON; Mr. HACKLEMAN; Mr. McDONALD.
 201. **Research.** Mr. HUTCHISON.
 202. **Seminar.** (1) Mr. HUTCHISON.

FARM MANAGEMENT

- 105a. **Farm Accounts.** 3 M W F in 209 Ag. (3) Mr. GREEN.
 110b. **Farm Organization.** 11 M W F in 200 Ag. (3) Mr. JOHNSON.
 112a. **Farm Records.** (2) Mr. JOHNSON.
 113b. **Farm Administration.** (2) Mr. JOHNSON.
 114. **Seminar.** Mr. JOHNSON; Mr. GREEN.
 201. **Investigation of Types of Farming.** Mr. JOHNSON; Mr. GREEN.
 202. **Investigation of Cost of Production and the Distribution of Labor.** Mr. JOHNSON; Mr. GREEN.
 207. **Investigation of Systems of Farm or Rural Practices and Organizations.** Mr. JOHNSON; Mr. GREEN.

FORESTRY

- 2b. **General Forestry.** 8 M W F. (3) Mr. DUNLAP.
 10a. **Dendrology.** 10 W, 2-4 T Th. (3) Mr. PEGG.

11. **Forest Seeds and Seedlings.** 9-12 S. (1) Mr. DUNLAP.
120. **Silviculture.** 9 M T W F, 2-4 Th or F. (5) Mr. DUNLAP.
- 121b. **Forest Mensuration.** 2-4 M, 8-10 Th S. (3) Mr. PEGG.
- 122b. **Forest Engineering and Milling.** 10 D. (5) Mr. PEGG.
- 124s. **Silvicultural Praxis.** (2) Mr. DUNLAP.
- 125s. **Mensuration.** (3) Mr. PEGG.
- 126s. **Lumbering.** (3) Mr. PEGG.
- 127a. **Forest Products.** 11 T Th. (2) Mr. PEGG.
- 128a. **Lumber Trade.** 11 M. (1) Mr. PEGG.
- 129a. **Forest Economics.** 9 M W F. (3) Mr. DUNLAP.
- 130a. **Seminary in Silviculture.** 11 W F. (2) Mr. DUNLAP.
- 132b. **Wood Technology.** 11 M W, 8-10 W F (4) Mr. DUNLAP.
- 133b. **Seeding and Planting.** 2-4 W F. (2) Mr. DUNLAP.
200. **Policy and Law.** (3) Mr. DUNLAP.
201. **Forest Organization.** (3) Mr. PEGG.
- 202a. **Forest Valuation.** (3) Mr. PEGG.
- 203a. **Lumbering.** (2) Mr. PEGG.
- 205a. **Care of Trees and Parks.** (3) Mr. DUNLAP.
- 206b. **History of Forestry.** (1) Mr. DUNLAP.
- 207b. **Forest Administration.** (1) Mr. DUNLAP.
- 208b. **Forest Plans.** This course will be given from April 1 to June 1 on the University forest. (8) Mr. PEGG.

GEOLOGY AND MINERALOGY

2a and b. **Physical Geology.** I 3 T Th in 205 Geol.; II 3 T Th in 206 Geol.; III 9 T Th in 205 Geol. Section III will not be given the second semester. Laboratory divisions: I 1-3 M; II 1-3 T; III 1-3 W; IV 1-3 Th; V 1-3 F; VI 8-10 M; VII 8-10 T; VIII 8-10 S; all in 104 Geol. (3) Mr. BRANSON; Mr. TARR; Mr. PARKINS; Mr. CONNOLLY; Mr. LONGWELL.

HOME ECONOMICS

- 1a and b. **Selection and Preparation of Food.** *First semester:* I 9 T Th in 205 Ac., 8-10 M W F in G.H.B.; II 9 T Th in 205 Ac., 10-12 M W F in G.H.B.; III 9 T Th in 205 Ac., 1-3 M W F in G.H.B. *Second semester:* I 9 T Th in 205 Ac., 8-10 M W F in G.H.B.; II 9 T Th in 205 Ac., 10-12 M W F in G.H.B.; III 9 T Th in 205 Ac., 1-3 M W F in G.H.B. (5) Miss STANLEY; Miss KNEELAND; Miss SPAULDING; Miss TROXELL.
- 10a. **Household Problems.** 10 T Th. (2) Miss STANLEY.
 - 11b. **Food Problems of the Household.** I 8-10 T Th.; II 10-12 T Th.; III 1-3 T Th; all in G.H.B. (2) Miss KNEELAND.
 - 20a. **Dietetics for Nurses.** (2) Miss STANLEY.
 - 51a or b. **Sewing.** (2) Miss TROXELL.
 52. **Principles of Selection and Construction of Clothing.** (3) Miss RONZONE.

- 101a. **House Sanitation.** (3) Miss KNEELAND.
 110b. **House Planning and Furnishing.** 10-12 M W F in G.H.B.
 (3) Miss RONZONE.
 120. **Food and Nutrition.** I 8-10 M W F in G.H.B.; II 1-3 M W F
 in G.H.B. (3) Miss KNEELAND.
 121. **Metabolism and Dietetics.** 8-10 M W F in Sch. (3) Miss
 STANLEY.
 152. **Advanced Clothing.** I 8-11 T Th in G.H.B.; II 1-4 T Th in
 G.H.B. (3) Miss RONZONE.

HORTICULTURE

- 1a and b. **General Horticulture.** 3 M W F in 200 Ag. (3) Mr.
 WHITTEN.
 2a and b. **Plant Propagation.** 9 F in 8 Hort., 8-10 W in 02 Hort.
 (2) Mr. WIGGANS.
 3a and b. **Vegetable Gardening.** 9 T Th in 8 Hort. (3) Mr.
 WHITTEN.
 4a and b. **The Evolution of Cultivated Plants.** 8 T Th in 8 Hort.
 (2) Mr. WHITTEN.
 100. **Fruit Production.** 8 M W in 8 Hort. (2) Mr. WHITTEN.
 102. **Landscape Gardening.** 11 M W. (2) Mr. MAJOR.
 103. **Floriculture.** 11 F, 9-10 D. (4) Mr. MAJOR.
 104a and b. **Fruit Judging.** 4-6 in 06 Hort. (1) Mr. WIGGANS.
 105. **Advanced Pomology.** 11 M W F in 11 Hort. (3) Mr. WHIT-
 TEN.
 106b. **Olericulture.** 9 M W F in 11 Hort. (3) Mr. WHITTEN.
 107. **Ornamental Plants.** 1 T, 2-4 T. (2) Mr. MAJOR.
 108. **Elementary Landscape Design.** 1-3 M W F. (3) Mr. MAJOR.
 109. **History of Landscape Gardening, Ancient, Mediæval, and
 Modern.** 11 T Th. (1).
 110a. **Theory and Principles of Landscape Design and Engineering.**
 (3)
 113a. **Fruit Packing.** 10 M W in 8 Hort. (2) Mr. WHITTEN; Mr.
 WIGGANS.
 112b. **Spraying.** 10 T Th in 8 Hort. (2) Mr. WHITTEN; Mr.
 WIGGANS.
 111. **Special Problems.** Hours by appointment. Mr. WHITTEN;
 Mr. MAJOR; Mr. WIGGANS.
 200. **Special Investigation.** Hours by appointment. Mr. WHITTEN;
 Mr. MAJOR.

AGRICULTURAL JOURNALISM

- 127a and b. **Agricultural Journalism.** 8 T Th in 100 Sw., conference
 to be arranged. (3) Mr. ROSS.

METEOROLOGY

1b. **Meteorology.** 2 Th in 302 Sw. (1) Mr. REEDER.

PHYSICS

1a and b. **Elementary Physics.** IV 11 M W F in 107 Phys., 10-12 T Th in 216 Phys.; V 2 M W F in 107 Phys., 1-3 T Th in 216 Phys.; II 9 M W F in 107 Phys., 8-10 T Th in 216 Phys.; VI 9 T Th S in 107 Phys., 8-10 W F in 216 Phys. (5) Mr. STEWART; Mr. RENTSCHLER; Mr. DIKE.

POULTRY HUSBANDRY

1a. **Elementary Poultry Raising.** 10 T Th, 1-3 T or 8-10 Th in Poul. (3) Mr. KEMPSTER; Mr. WEBSTER.

2b. **Elementary Poultry Raising.** 10 T Th, 1-3 W in Poul. (3) Mr. KEMPSTER; Mr. WEBSTER.

3a. **Marketing Poultry Products.** 9 M W, 9-11 S in Poul. (3) Mr. KEMPSTER.

4a. **Poultry Judging.** 3 T Th, 8-10 Th in Poul. (3) Mr. KEMPSTER.

5b. **Poultry Farm Management.** 10 M W in Poul. (3) Mr. KEMPSTER.

6b. **Incubating and Brooding Practice.** 10 W in Poul. (3) Mr. KEMPSTER; Mr. WEBSTER.

RURAL ECONOMICS

2a and b. **Principles of Economics.** 10 M W F in 21 Sch. (3) Mr. GROMER.

100a and b. **Principles of Rural Economics.** 10 T Th in 21 Sch. (2) Mr. GROMER.

101a. **Rural Organization and Marketing.** 9 M W F in 106 Phys. (3) Mr. GROMER.

102b. **Land Tenure.** 10 T Th in 106 Phys. (2) Mr. GROMER.

104a. **Economic History of Agriculture.** 10 T Th in 106 Phys. (2) Mr. GROMER.

200. **Seminar.** Credit to arranged. Mr. GROMER.

RURAL SOCIOLOGY

115a and b. **Rural Sociology.** 11 T Th in 301 Ac. (2) Mr. BERNARD.

SOILS

1a and b. **Soil Physics and Soil Fertility.** *First semester:* 9 M W F in 200 Ag., laboratory sections 1-3 M W, 1-3 T Th, 8-10 T Th. *Sec-*

- ond semester:* 9 M W F, laboratory sections same as first semester. (5) Mr. MILLER; Mr. LECLAIR; Mr. KRUSEKOPF.
- 100b. **Soil Management.** 11 M W F (3) Mr. HUDELSON.
- 101a. **Soil Technology.** 10 M in 11 Hort., 10-12 T W Th F in 100 Ag. (5) Mr. MILLER; Mr. LECLAIR.
- 102a. **Soil Surveying.** (2) Mr. LECLAIR; Mr. KRUSEKOPF.
- 103b. **Soil Investigations.** One lecture and two laboratory periods a week. (3) Mr. MILLER; Mr. HUDELSON.
- 104b. **Soils of the United States.** 9 T Th. (2) Mr. MILLER.
200. **Seminar.** (1) Mr. MILLER.
201. **Soil Research.** (2-5) Mr. MILLER.

VETERINARY SCIENCE

- 1a. **Anatomy and Physiology.** 11 T Th, 10-12 M W F in Vet. (5) Mr. CONNAWAY; Mr. BACKUS; Mr. HEATON.
- 2a. **Veterinary Medicine and Surgery (minor course).** 9 T, 10-12 T Th in Vet. (3) Mr. BACKUS; Mr. HEATON.
104. **Topographic Veterinary Anatomy.** Mr. CONNAWAY.
- 105b. **Veterinary Medicine.** 10-12 T Th in Vet. (3) Mr. BACKUS; Mr. HEATON.
- 106a. **Veterinary Surgery and Obstetrics (advanced course).** 10-12 T Th, 8-1 S in Vet. (3) Mr. BACKUS; Mr. HEATON.
107. **Stock Farm Sanitation and Disease Prevention (advanced course).**
209. **Investigation.** Mr. CONNAWAY; Mr. BACKUS; Mr. GINGERY.

ZOOLOGY

- 1a and b. **General Zoology.** *First semester:* I 3 T Th in 200 Ag., 8-10 T Th S in Biol.; II 3 T Th in 200 Ag., 8-10 T Th S in Biol.; III 3 T Th in 200 Ag., 10-12 T Th S in Biol.; IV 3 T Th, 10-12 T Th S in Biol.; V 9 T Th, 8-10 M W F in Biol. *Second semester:* V 3 T Th, 8-10 T Th S in Biol.; VI 3 T Th, 8-10 T Th S in Biol.; VII 3 T Th, 10-12 T Th S in Biol.; VIII 3 T Th, 10-12 T Th S in Biol.; IX 8 T Th, 8-10 M W F in Biol. (5) Mr. CURTIS; Mr. DODDS.

OTHER ACTIVITIES OF THE COLLEGE OF AGRICULTURE

The College of Agriculture does not limit its work to the college teaching at Columbia. There are three distinct lines of work which the University thru the College of Agriculture undertakes to do for the citizens of Missouri. These are:

- (1) college teaching at Columbia,
- (2) the discovery of new facts,

(3) the dissemination of information to those who cannot come to Columbia.

The college teaching is described herein. Thru the Agricultural Experiment Station new truths are being discovered and new facts developed for the use of the farmers of Missouri. The Agricultural Extension Service is a branch of the College of Agriculture organized solely to take the teachings of the College of Agriculture and the discoveries of the Agricultural Experiment Station to those who are not in a position to receive the benefit of the teaching at Columbia. Special bulletins and circulars dealing with the work of the Agricultural Experiment Station and Agricultural Extension Service may be had on request.

POSITIONS THAT HAVE BEEN HELD OR ARE NOW HELD BY GRADUATES OF THE COLLEGE OF AGRICULTURE

President, Kansas State Agricultural College.

Dean, College of Agriculture, University of Missouri.

Dean, College of Agriculture, Cornell University.

Assistant Secretary of Agriculture, Washington, D. C.

In charge of Soil Survey, U. S. Department of Agriculture.

Dean, College of Agriculture, University of Louisiana, and

Director of the Louisiana Agricultural Experiment Station.

Dean, College of Agriculture, University of Arkansas (now retired).

Professor of Agriculture, Pennsylvania State College.

Acting Director, United States Bureau of Agriculture, Manila, P. I.

Director of Experiment Station, Mayaguez, Porto Rico.

Director of Agricultural Education of Argentine.

Professor of Agronomy, Delaware Agricultural College.

Professor of Animal Husbandry, Pennsylvania State College.

Chief in Nutrition, Ohio Experiment Station.

Professor of Agricultural Chemistry, Oklahoma A. and M. College.

Professor of Horticulture and Botany, Oklahoma A. and M. College.

Professor of Comparative Medicine, North Carolina A. and M. College.

Professor of Animal Husbandry, University of Florida.

Professor of Pomological Research, College of Agriculture, Cornell University.

Professor of Animal Husbandry, Kansas State Agricultural College.

Professor of Plant Pathology, College of Agriculture, University of Arkansas.

Professor of Agronomy, University of Idaho.

Professor in Animal Husbandry, Alabama Polytechnic Institute.

Professor of Soils, North Carolina A. and M. College.

Professor of Dairy Husbandry, Kansas State Agricultural College.

Professor of Dairy Husbandry, Connecticut Agricultural College.

Professor of Dairy Husbandry, North Dakota Agricultural College.

Professor of Dairy Husbandry, University of Idaho.

- Professor of Dairy Husbandry, Oregon Agricultural College.
 Associate Professor of Dairy Husbandry, University of Minnesota.
 Technical Expert, Wheat Ice Cream Co., Buffalo, N. Y.
 Associate Professor of Dairy Husbandry, Pennsylvania State College.
 Dairy Expert, Borden Condensed Milk Co., Chicago, Ill.
 Assistant Professor of Dairy Husbandry, Utah Agricultural College.
 Assistant Professor of Dairy Husbandry, University of Nebraska.
 Professor of Farm Crops, Iowa State College.
 Associate Professor of Animal Husbandry, Iowa State College.
 Professor of Animal Husbandry and Dairying, University of Arkansas.
 Professor of Agronomy, North Dakota Agricultural College.
 Professor of Animal Husbandry, University of Tennessee.
 Assistant Professor of Poultry Husbandry, New Hampshire Agricultural College.
 Professor of Animal Husbandry, Oklahoma A. and M. College.
 Associate Professor of Animal Husbandry, University of Illinois.
 Assistant Professor of Animal Husbandry, University of Idaho.
 Assistant Professor of Animal Husbandry, Texas A. and M. College.
 Associate in Animal Husbandry, Purdue University.
 Assistant Professor of Horticulture, University of Washington.
 Assistant Professor of Horticulture, Texas A. and M. College.
 Professor of Pomology, Massachusetts Agricultural College.
 Professor of Horticulture, University of Nebraska.
 Associate Professor of Pomology, University of California.
 Experimental Horticulturist, North Carolina Experiment Station.
 State Leader of County Agents, University of Wyoming.
 Assistant Professor of Physiological Chemistry, Kansas State Agricultural College.
 Assistant Professor of Farm Crops, Iowa State College.
 Extension Assistant Professor of Agronomy, Iowa State College.
 Superintendent of Dairy Division, Experiment Station, U. S. Department of Agriculture.
 Assistant Dairy Husbandman, U. S. Department of Agriculture.
 Assistant Dairy Husbandman, U. S. Department of Agriculture.
 Dairy Chemist, Ohio Experiment Station.
 Superintendent, Government Demonstration Farm, Denison, Texas.
 Dairy Extension, South Carolina Agricultural College.
 Dairy Extension, University of Nebraska.
 Dairy Extension, Connecticut Agricultural College.
 Dairy Extension, U. S. Department of Agriculture, (Located in Georgia).
 Dairy Extension, U. S. Department of Agriculture, (Located in Alabama).
 Dairy Extension, U. S. Department of Agriculture, (Located in Idaho).
 Dairy Extension, U. S. Department of Agriculture, (Located in Nevada).
 Assistant Professor of Plant Physiology, Cornell University.
 Assistant Professor of Horticulture, Madison, Wisconsin.
 Assistant Professor of Veterinary Science, Michigan Agricultural College.

Assistant Professor Agricultural Education, Texas A. and M. College.
Assistant Horticulturist, Purdue University.
Assistant State Plant Pathologist, New Jersey Agricultural College.
Editor, Farmer and Stockman, Kansas City, Mo.
Editor, Orange-Judd Farmer, Chicago, Ill.
Animal Husbandry Editor of Capper Publications, Topeka, Kans.
Field Editor, The Missouri Farmer, Columbia, Mo.
Business Manager, The Daily Record, Kansas City, Mo.
Sales Manager of Fertilizer Department Swift & Company, St. Joseph, Missouri.
Assistant Agriculturist, U. S. Department of Agriculture and Colorado Agricultural College.
State Farm Management Demonstrator, University of Nebraska.
County Agricultural Agent, Posey County, Indiana.
County Agricultural Agent, Delaware County.
County Agricultural Agent, Hendrix County, Indiana.
County Agricultural Agent, Steuben County, Indiana.
County Agricultural Agent, Grundy County, Illinois.
County Agricultural Agent, Adams, County, Illinois.
County Agricultural Agent, Atchison County, Kansas.
County Agricultural Agent, Hamilton County, Indiana.
County Agricultural Agent, Will County, Illinois.
County Agricultural Agent, Gilford County, N. C.
County Agricultural Agent, Livingstone County, Illinois.
County Agricultural Agent, Knox County, Mo.
County Agricultural Agent, Cape Girardeau County, Mo.
County Agricultural Agent, Jackson County, Mo.
County Agricultural Agent, Audrian County, Mo.
County Agricultural Agent, Johnson County, Missouri.
County Agricultural Agent, Greene County, Missouri.
County Agricultural Agent, St. Francois County, Missouri.
Scientific Assistant, Bureau of Plant Industry, Washington, D. C.
Assistant Agronomist in Sugar Beet Investigations, Colorado Agricultural College.
Assistant in Farm Crops, College of Agriculture, Cornell University.
Instructor in Dairy Husbandry, University of Nebraska.
Instructor in Dairy Husbandry, New Jersey Agricultural College.
Instructor in Dairy Husbandry, Pennsylvania State College.
Instructor in Dairy Husbandry, Iowa State College.
Research Assistant in Dairy Bacteriology, Michigan Agricultural College.
Director, Department of Agriculture, Idaho Industrial Institute.
Chemist Dairy Division, U. S. Department of Agriculture.
Assistant in Dairy Husbandry, Oklahoma A. and M. College.
Instructor in Farm Management, Colorado Agricultural College.
Assistant in Poultry Husbandry, Pennsylvania State College.

- Instructor in Animal Husbandry, (Poultryman) South Dakota Agricultural College.
- Instructor in Animal Husbandry, (Poultryman), Colorado Agricultural College.
- Investigator in Poultry and Egg Handling, Food Research Laboratory, Washington, D. C.
- Horticulturist, St. Louis and San Francisco Railroad System, Springfield, Mo.
- Assistant Horticulturist, University of Tennessee.
- Assistant Agriculturist, Cotton Belt Ry. Company, St. Louis, Mo.
- Scientific Investigator, Bureau of Plant Industry, Washington, D. C.
- Editor, Fruit Grower and Farmer, St. Joseph, Mo.
- Field Assistant, Missouri Fruit Experiment Station, Mountain Grove, Missouri.
- Assistant in Horticulture, Truck Experiment Station, Norfolk, Va.
- Instructor in Pomology, College of Agriculture, Cornell University.
- Extension Horticulturist, North Carolina Agricultural College.
- Extension Entomologist, Kansas State Agricultural College.
- Horticultural Inspector, North Yakima, Washington.
- Instructor in Horticulture, College of Agriculture, Cornell University.
- Assistant to the Dean, Iowa State College.
- Assistant in Animal Husbandry, University of Illinois.
- Associate Editor, Swine World, Chicago, Ill.
- Fieldman, The Duroc Bulletin, Chicago, Ill.
- Live Stock Editor, Farm Progress, St. Louis, Mo.
- Secretary, Boone County Fair, Columbia, Mo.
- In Charge of Department of Agriculture, Normal School, Maryville, Mo.
- Assistant Chemist, Ohio Agricultural Experiment Station.
- Assistant Chemist, Oklahoma A. and M. College.
- Chemist for Water Department, Columbus, Ohio.
- Professor of Agriculture, Iberia Academy, Iberia, Mo.
- Instructor in Botany, Pennsylvania State College.
- Assistant Chemist, Oklahoma A. and M. College.
- Chemist for Water Department, Columbus, Ohio.
- Professor of Agriculture, Iberia Academy, Iberia, Mo.
- Instructor in Botany, Pennsylvania State College.
- Instructor in Animal Husbandry, Pennsylvania State College.
- Instructor in Dairy Husbandry, Tennessee Agricultural College.
- Instructor in Animal Husbandry, Texas A. and M. College.
- Assistant State Entomologist, Albany, N. Y.
- In Charge of Agricultural Investigation, Cairo, Egypt.
- Junior Dairyman, U. S. Department of Agriculture.
- Farm Management Investigations, U. S. Department of Agriculture.
- Bureau of Soils, U. S. Department of Agriculture.
- Assistant in Soils, Ohio Agricultural Experiment Station.
- In Department of Agronomy, Kentucky Agricultural Experiment Station.

Salesman, Fertilizer Department, Swift and Company, St. Joseph, Mo.
 Salesman, Commercial Fertilizer Company, St. Louis, Mo.
 Instructor in Agriculture, Normal School, Cape Girardeau, Missouri.
 Farm Management, Field Investigations, U. S. Department of Agriculture.
 Six men with Government Soil Survey, Washington, D. C.
 Assistant in Agronomy, University of Nebraska.
 Government Forest Service, Minnesota.
 Government Forest Service, Flag Staff, Arizona.
 Superintendent Public Schools, Columbia, Missouri.
 Assistant to the Manager, Union Dairy Company, St. Louis, Missouri.
 Superintendent Pure Bred Guernsey Cattle, St. Louis, Missouri.
 Assistant to Manager of Falfurrias Dairy Company, (which owns the largest herd of dairy cattle in America), Falfurrias, Texas.
 Superintendent Elmdorf Dairy, Lexington, Ky.
 Chemist, Cotton Seed Oil Mill, El Reno, Oklahoma.
 Chemist, Southern Cotton Association, Dallas, Texas.
 Teacher of Agriculture, University of Porto Rico.
 Landscape Architect, St. Paul, Minn.
 Government Farmer, Yuma, Arizona.
 Teacher of Agriculture, Illinois College, Jacksonville, Illinois.
 Teacher of Agriculture, Central High School, Memphis, Tenn.
 Teacher of Horticulture, Tonkowa, Oklahoma.
 Teacher of Agriculture, Bird Island, Minnesota.
 Teacher of Agriculture, Fairmount Academy, Fairmount, Indiana.
 Teacher of Agriculture, High School, Gardena, Calif.
 Teacher of Agriculture, Joplin High School, Missouri.
 High School Teacher, Maple Lake, Minn.
 High School Teacher, Slater, Mo.
 High School Teacher, Kenton, Tenn.
 High School Teacher, Craig, Mo.
 High School Teacher, St. Louis, Mo.
 High School Teacher, Liberty, Mo.
 Head of Department of Rural Arts, State Normal School, Fredricksburg, Va.
 High School Teacher, Trenton, Mo.
 High School Teacher, Kirkwood, Mo.
 High School Teacher, Philadelphia, Pa.
 High School Teacher, Albuquerque, New Mexico.
 Lawyer, Columbia, Mo.
 Farmer's Institute Lecturer, State Board of Agriculture, Columbia, Mo.
 Superintendent Training School Farm, Boonville, Mo.
 Agricultural Expert, Dry Farming Investigations, U. S. Department of Agriculture, Ardmore, South Dakota.
 With Civil Service Commission, Chicago, Illinois.
 Government Clerk, St. Louis, Missouri.
 Fertilizer Chemist, Swift and Company, Kansas City, Mo.

Supervisor of Experimental Farms for the American Agricultural Chemical Company, St. Louis, Missouri.
Fertilizer Salesman, Swift and Company, East St. Louis, Ill.
With Bowman Dairy Co., Chicago, Ill.
Traveling Salesman, St. Louis, Missouri.
Manufacturer of Hog Cholera Serum, Perryville, Mo.
Manufacturer of Hog Cholera Serum, Marshall, Mo.
Veterinarian, Bozeman, Montana.

The above list does not include the large number of farm owners and operators, farm managers, orchard managers, creamery operators and dairy farm managers, plantation managers and estate managers among men holding diplomas and certificates from the College of Agriculture nor the positions held by men in lines of work or businesses not strictly agricultural in nature.

FACULTY OF THE COLLEGE OF AGRICULTURE

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Professor of Geology.

CHESTER LELAND BREWER,
Professor of Physical Education.

WILLIAM GEORGE BROWN, B. S., Ph. D.,
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SIDNEY CALVERT, B. S., A. M.,
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ELIZABETH MONROE, A. B., B. S. in Ed.,
Assistant in Botany.

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Assistant in Botany.

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Assistant Poultry Husbandry.

PERCY WERNER, JR., B. S. in Agr.
Assistant in Dairy Husbandry.

INFORMATION ABOUT THE UNIVERSITY

The fundamental aim of the University of Missouri is the development of the highest and most efficient type of citizen. For the purpose of attaining its aim, the University furnishes ample facilities for liberal education and for thoro professional training. The University is a part of the public educational system of the state.

ORGANIZATION

The work of the University is now carried on in the following divisions:

- College of Arts and Science
- College of Agriculture
- School of Education
- School of Law
- School of Medicine
- School of Engineering
- School of Mines and Metallurgy
- School of Journalism
- School of Commerce
- Graduate School
- Extension Division

All of these divisions are at Columbia, with the exception of the School of Mines and Metallurgy, which is located at Rolla. In addition, emphasis is given particular lines of work by the establishment of minor divisions, the chief of which are the Agricultural Experiment Station, the Engineering Experiment Station, and the Missouri State Military School.

LOCATION

The University of Missouri is located at Columbia, situated half way between St. Louis and Kansas City, near the center of the state. It is reached by the Wabash and by the Missouri, Kansas and Texas railways. Columbia is a progressive and prosperous town having doubled its population in the last few years.

Columbia may be characterized as a town of schools, homes, and churches, with enough of industrialism to make it efficient. It offers the conveniences of a larger city without the counter attractions. The student is a predominant factor in Columbia.

EQUIPMENT

The University grounds cover more than 800 acres. The main divisions are in the west campus, the east campus, the athletic fields, and the University farm.

The following University buildings are located at Columbia: Academic Hall; Laws Observatory; separate buildings for chemistry, physics, biology, commerce and geology, engineering, manual arts, law; two power houses; Library Building; Medical Laboratory Building; Parker Memorial Hospital; Agricultural Building; Horticultural Building; Schweitzer Hall for agricultural chemistry; green houses; Live Stock Judging, Poultry, Dairy, Farm Machinery, and Veterinary Buildings; the University farm barns and buildings; Switzler Hall for the School of Journalism; Gordon Hotel Building for home economics; Benton and Lathrop Halls, dormitories for men; Read Hall and Sampson Hall, dormitories for women; Rothwell Gymnasium; the houses for the President of the University and the Dean of the Faculty of Agriculture; the High School and the Elementary School buildings, used for practice schools in the School of Education. The new library building will be occupied in the course of the summer of 1915.

FOR FURTHER INFORMATION

For further information concerning the College of Agriculture address

F. B. MUMFORD,

DEAN, FACULTY OF AGRICULTURE,

UNIVERSITY OF MISSOURI,

COLUMBIA, MISSOURI.

Full information regarding the University is given in the catalog, which will be sent on request without charge. For this or special bulletins of the College of Arts and Science, College of Agriculture, School of Education, School of Law, School of Medicine, School of Engineering, School of Journalism, School of Commerce, Extension Division, and the Graduate School, write to

DEAN OF THE UNIVERSITY FACULTY,

UNIVERSITY OF MISSOURI,

COLUMBIA, MISSOURI.

UNIVERSITY CALENDAR

AT COLUMBIA

1915

Summer Session

June 10.....	Thursday, registration
June 11.....	Friday, organization of classes
August 6.....	Friday, examinations
August 7.....	Saturday, entrance examinations

First Semester

September 13, 14, 15.....	Monday, Tuesday and Wednesday, entrance examinations and registration
September 16.....	Thursday, 8 a. m., class work in all divisions begins
September 16.....	Thursday, 10 a. m., opening convocation
Nov. 1 to Dec. 17.....	First term, short course in agriculture
November 25.....	Thursday, Thanksgiving, holiday
December 17.....	Friday, 4 p. m., to

1916

January 4.....	Tuesday, 8 a. m.	} Christmas holidays
Jan. 10 to Feb. 26.....	Second term, short course in agriculture	
January 22.....	Saturday, to	} Mid-year examinations
January 29.....	Saturday,	
January 27, 28, 29.....	Thursday, Friday, and Saturday, entrance examinations	

Second Semester

Jan. 31, Feb. 1.....	Monday and Tuesday, registration, second semester	
February 2.....	Wednesday, 8 a. m., class work in all divisions begins	
February 3.....	Thursday, 10 a. m., opening convocation	
February 22.....	Tuesday, Washington's Birthday, holiday	
April 19.....	Wednesday, 4 p. m., to	} Easter holidays
April 25.....	Tuesday, 8 a. m.	
May 28.....	Sunday, baccalaureate address	
June 1.....	Thursday, commencement day	
June 2.....	Friday, to	} Final examinations
June 9.....	Friday	

THE
UNIVERSITY OF MISSOURI
BULLETIN

GENERAL SERIES

EDITED BY
HUGH J. MACKAY
University Publisher

The General Series of The University of Missouri Bulletin consists of the announcements of the various colleges and schools which make up the University. These announcements will be sent free upon request to the Dean of the University Faculty, Columbia, Missouri.

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VOLUME 16 NUMBER 26

GENERAL SERIES

1915, No. 11

ANNOUNCEMENT OF THE TWO-YEAR WINTER COURSE AND OTHER SHORT COURSES

COLLEGE OF AGRICULTURE

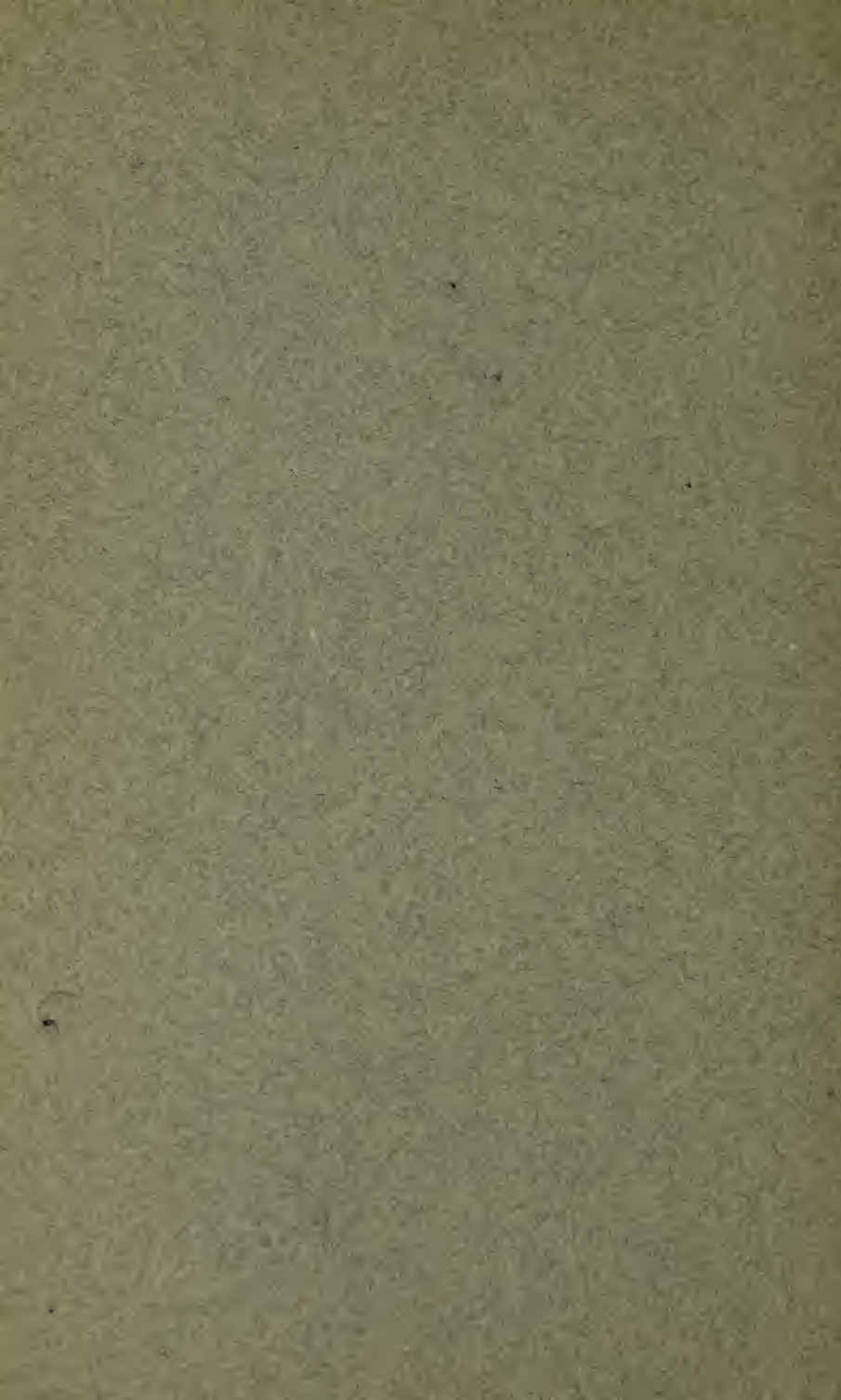
1915-1916



UNIVERSITY OF MISSOURI

COLUMBIA, MISSOURI

September, 1915



THE UNIVERSITY OF MISSOURI BULLETIN

VOLUME 16 NUMBER 26

GENERAL SERIES
1915, No. 11

ANNOUNCEMENT
OF THE
TWO-YEAR WINTER COURSE AND
OTHER SHORT COURSES
COLLEGE OF AGRICULTURE
1915-1916



UNIVERSITY OF MISSOURI
COLUMBIA, MISSOURI
September, 1915



The graduating class of February, 1915. Reading left to right.

First row: I. B. Hobrecht, Sedalia; H. D. Momberger, Wellsville; G. E. Semon, Rochepot; M. E. Neher, Leeton; E. L. Arnold, Holt; D. Morton, St. Joseph; S. A. Yarborough, Reeds; G. F. Rudy, Smithton; G. M. Moore, Elsberry. Second row: R. Burkhardt, Chesterfield; F. D. Connett, St. Joseph; G. A. Tabor, Warrensburg; A. Hensel, Deepwater; C. E. Rocklage, Marthasville; O. Axon, Martinsburg; J. D. Wood, Smithville; W. P. Clarkson, Callao; H. J. Howald, Eureka. Third row: W. R. Busey, Memphis; G. S. Etem, Hickman Mills; C. J. Smith, Greenwood; G. H. Ray, Dearborn; J. R. Mevey, Carthage; C. A. Neidert, High Gate; R. A. Palmer, Clifton Hill. Fourth row: S. S. Connett, St. Joseph; P. R. Cox, Buffalo; J. F. Green, Smithton; G. O. Pickett, Stevartsville; C. A. Hull, Platte City; E. K. Beckett, Shelby; P. H. Emerson, Hurdland; F. B. Astroth, St. Louis; H. S. Corken, Burlington Junction.

Two-Year Winter Course in Agriculture

(SHORT COURSE)

Twenty years ago the Short Course in Agriculture was established by the University of Missouri. Since then 2468 students have been enrolled in this practical course. Its influence has been state-wide. Every county in Missouri, except one, has sent students to the short course. Young men in other states have seen the splendid opportunity afforded by the short course at the Missouri College of Agriculture and they have come from many states to share in the good things which this course offers.

The Two-Year Winter Course in Agriculture is a practical course for practical farmers. It is especially arranged to meet the needs of the man who wants to farm on a business basis,—make money, live comfortably, and be an active worker for the community in which he lives. Wherever possible the teaching is done by actually having students do the work instead of merely telling them how it ought to be done. It trains for successful farming.

The Two-Year Winter Course teaches:

How to raise larger crops with less labor, and better live stock with less expense.

How to select and care for seed corn and other grains so that instead of "running out" they will become better from year to year.

How to handle soils so there will be no waste of soil moisture or fertility.

How to rotate crops and what crops to grow so that the farm will increase in fertility year after year.

How to apply commercial fertilizers and handle barnyard manure for best results.

How to plan farm buildings with proper regard for ventilation, light, heat, and cleanliness.

How to operate all kinds of farm machinery including gasoline engines.

How to select and judge all classes and breeds of cattle, horses, sheep, hogs, and poultry.

How to figure balanced rations for farm stock and combine feeds so as to secure the greatest gains at lowest cost.

How to apply the principles of breeding so as to bring about improvement in all kinds of live stock.

How to manage a stock farm so as to assure generous returns for investment and labor.

- How to recognize and successfully combat those insect pests that endanger health and destroy farm crops.
- How to care for sick animals and perform simple surgical operations.
- How to make post-mortem examinations, vaccinate against black leg, and immunize against hog cholera.
- How to propagate trees and shrubs by grafting and budding.
- How to manage hotbeds and care for the home vegetable garden.
- How to plant, cultivate, prune, and spray fruit trees as well as how to gather, pack, and market the fruit.
- How to lay out and care for the home grounds so as to make them at once attractive and convenient.
- How to classify soils and adapt cropping systems to the various soil types.
- How to care for edged tools and do all ordinary carpentry and black-smithing with special reference to work along lines which are particularly useful on the farm.
- How to breed, feed, and manage poultry; operate incubators and brooders; and build good, useful poultry houses.
- How to organize farmers' clubs and secure social and business co-operation between people in the country.
- How to operate cream separators, test milk for butter fat, make individual tests of dairy cows, handle milk and cream either for direct sale or to make up into butter..
- How to select high-producing dairy cows and how to feed and care for them in order to get the best returns.
- How to feed and care for dairy calves.
- How to manage a farm on a business basis and keep an accurate record of all matters pertaining to the management of a farm.

A GOOD INVESTMENT

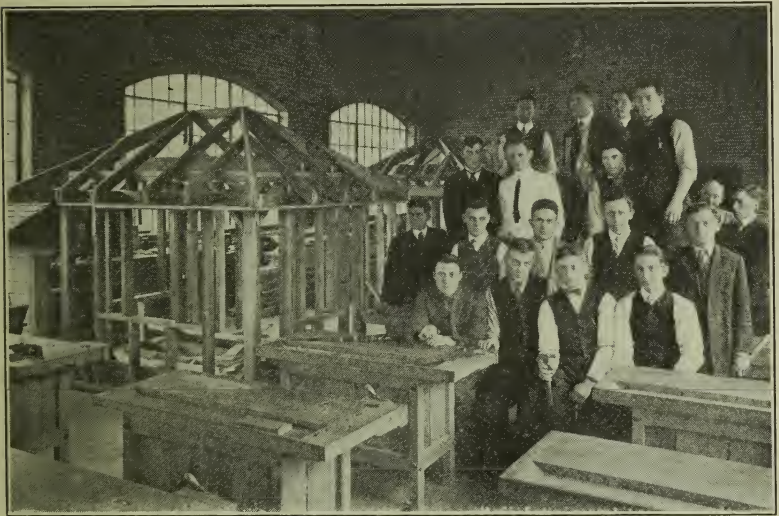
Men who have completed the work of the Two-Year Winter Course in Agriculture have had their earning capacity increased \$50 to \$500 a year. Thus, it is seen that the money expended in taking the short course is really invested at from 20 to 250 per cent per annum. From a dividend paying standpoint, there are few investments open to young men in Missouri which can in any way compare with this.

Whether a man returns to his own or to his father's farm, or whether he enters the employ of another, the short course will prove equally valuable. Year by year the college receives an increasing number of inquiries for students to work on farms at wages materially higher than are paid to untrained men. The demand for trained farm managers is steadily growing. The services of men who farm with their heads as well as their hands are being eagerly sought for. Any wide-awake young man may place himself in a position to take advantage of these opportunities by entering the Two-Year Winter Course and completing its requirements in a satisfactory manner.

WHAT THE GRADUATES THINK OF THE SHORT COURSE

These statements are taken from just a few of the letters that have been received from those who have taken the full two years' course. If space would permit, dozens of similar statements could be included.

"When viewed from a dollars and cents standpoint the short course is worth ten times what it actually costs. By applying the principles taught in the veterinary science department, I feel sure I have saved in live stock many times the cost of the course." Dennis Phelan, Allenton, Mo.



Students learn something about farm carpentry in the woodworking course. Simple house framing is taught.

"It enables one to grow larger crops with less expense, also teaches one how to arrange the rotations of the different crops to the best advantage. It teaches the value of pure bred live stock." M. A. Gregory, Marling, Mo.

"Our land is being gradually built up in fertility. Our stock is making greater profits." A. E. Daniel, McFall, Mo.

"It is the biggest little investment one can make. One's chances for success in farming are vastly increased and he can not afford to not take it." R. S. Hewlitt, Eldorado Springs, Mo.

"I am not only able to raise better crops of all kinds, keep up the fertility of the soil better and raise better live stock but I have

a broader view of life generally. I think that my association with University students and faculty and my attendance at the numerous lectures outside of classes given for the benefit of the short course boys were of equal if not greater value than the training in the purely practical subjects." F. M. Rickman, Wellsville, Mo.

"Before I took the short course I was working as a farm hand at less than \$20 a month. Last year I was tester for the Jackson County Cow Testing Association at \$50. Now I am herdsman for the man whose name is on this letterhead, with one of the best herds in the state, at \$60 a month and board." E. F. Pentecost, Martin City, Mo.

"Numerous as are the different branches of agriculture found on a general farm there is none of them about which I did not learn something of considerable value which can be put to some practical use." E. H. Autenreith, Bluffton, Mo.

"I for one cannot recommend the short course enough, and am always boosting it. I am acquainted with several who have graduated and I know them to be considerably above the average farmer of the same age, and I fully believe the training in the short course has been the reason." R. Q. Shaw, Corso, Mo.

"The seasons have been unfavorable on account of drouth and wet weather combined but I have grown as high as fifty bushels of corn on a place that people seemed to think was worn out, and that without fertilizers." H. B. Hatfield, Braymer, Mo.

"This course gives you the many years of past experience which has taught others and gives you a chance to begin where others stopped off instead of spending the best part of your life in finding out what should be known in the beginning." R. E. Higgins, Houstonia, Mo.

"I have used my training on every hand and to its value can lay no estimate that will be anything like correct." G. H. Morthland, Molino, Mo.

"I have just been offered the position of managing a 1000-acre ranch in Kansas, a position which I could not have filled before I took the course." B. Y. Edelen, Pleasant Hill, Mo.

"One of the greatest helps of the course is the great realization of possibilities. * * * It has taught me not to stay with a losing proposition." H. A. Quaintance, Bucyrus, Ohio.

"The short course was certainly worth while to me. It has given me a broader view of modern agriculture, and farming does not seem to be half as much drudgery as it did before. Before I took the course I was receiving \$20 a month and board. Last winter I received \$60 a month on a large dairy near Kansas City. I had charge of the bottling work. That is what the short course has done for me." H. L. Peabody, Smithton, Mo.

"I now have double the amount of live stock the place had before I attended the short course and it is paying a greater profit than formerly. I do not consider the training I got in the purely practical subjects the greatest value, but have found it of general helpfulness in making me a broader man." W. D. Ashburn, Farmington, Mo.

"We don't keep any more stock than before I attended but it is making us more profits." Cato S. Jackson, Cabool, Mo.

"We understand better how to produce greater crops and to produce meat more economically. We understand how to make our farm home more attractive and are better enabled to be of service to our fellow men and to the community. * * * It instills within us the necessity of remaining a student." W. M. Roberts, Maysville, Mo.

"It has helped my father and myself in keeping up soil fertility, planning rotations, feeding our cattle and hogs better rations, and in cutting down surplus work stock on a farm of 550 acres." W. P. Hockenberry, Bunceton, Mo.



Short Course students at work in the forge room. The practice they get in this course enables them with a handy forge and a simple set of tools to save many trips to town for repairs.

WHO MAY ATTEND

The Two-Year Winter Course is intended primarily for students who have not completed high school. There are no examinations given to enter this course. The only requirement is that a student must be 16 years old or older. Experience in farm work is of great value in helping a student to get the most out of the work. Men of mature years who have had the responsibility of managing a farm will

find the course of great and lasting value. Among the most enthusiastic students who have taken the course and who give it their hearty endorsement are some of the large landowners and farmers of Missouri.

A student should have the equivalent of a common school education. However, this is not absolutely necessary and mature men of good average ability who are willing to work hard will get along very well with even less preparation than is afforded by the common schools.

High school graduates and even college graduates who lack the practical facts of scientific agriculture find in this course the information they seek. The work is so elastic that men with advanced preparation are able to occupy their time as fully as the men who come without the preparation of the high school, but with the practical preparation of the farm. As a general rule, students who have completed the course in a high school are advised to attend the four-year course in preference to the short course.

The course is open to both men and women.

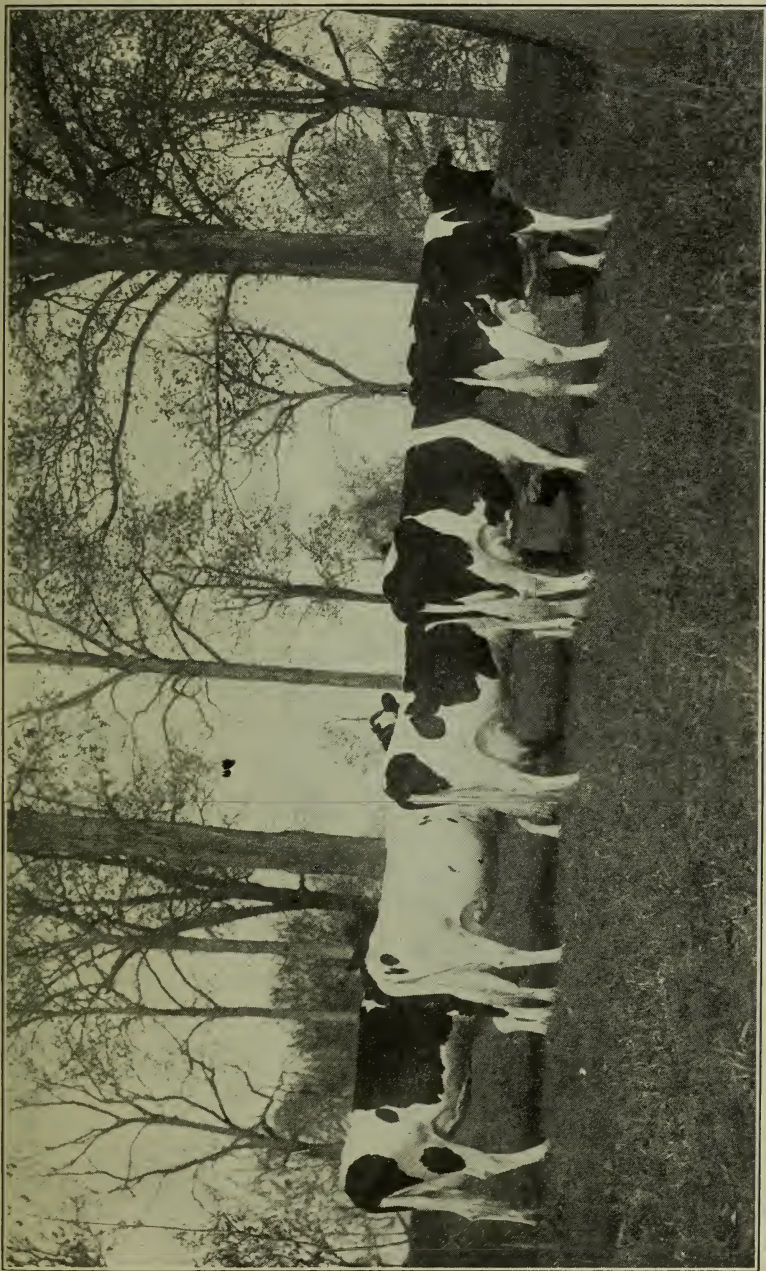
FEES AND EXPENSES

The cost of four terms including board, room, books, fees, and other necessary expenses need not exceed \$220. This is an average cost of \$55 a term. Each student must pay an incidental fee of \$6 each term. Small laboratory fees are charged in veterinary science, dairy husbandry, farm carpentry, black-smithing, and grain judging. Books cost about \$9 a term. A student should bring at least \$35 with him when he comes to Columbia to start the course. A fee of \$1 is required for each certificate of graduation.

The following textbooks are required in the Two-Year Winter Course:

Principles and Practice of Poultry Culture—Robinson.....	\$2.50
Judging Live Stock—Craig.....	1.50
Types and Breeds of Farm Animals—Plumb.....	2.00
Feeds and Feeding—Henry	2.25
Breeding Farm Animals—Marshall	1.50
Dairy Cattle and Milk Production—Eckles.....	1.60
Modern Methods of Testing Milk and Milk Products—Van Slyke..	1.00
Farm Crops—Wilson and Marburton	1.50
Bailey's Principles of Fruit Growing	1.25
Vegetable Gardening—Watts	1.75
Soils and Soil Fertility—Whitson & Walster.....	1.25
Agricultural Engineering—Davidson	1.50
Farm Management—Warren	1.75

Only part of these books are bought each term. Some of them are used in two or more subjects. In addition to the textbooks, a student is required to buy a few notebooks, pencils, pens, etc. The cost of such miscellaneous items is very small.



These five Holstein cows bred at the University of Missouri have produced an average of more than 20,000 pounds of milk each in a year.

ROOM AND BOARD

Rooms:

The University has two dormitories for men. Most of the rooms in these dormitories are taken by regular term students. The Young Men's Christian Association maintains a dormitory for men in the Y. M. C. A. Building. Occasionally there are a few vacancies in this dormitory so that some short course men can room there. For the most part, however, the short course men room in private residences. The usual price for a room is from \$10 to \$12 a month. Two men occupy a room. A room therefore costs each man from \$5 to \$6 a month.

Board:

Most of the short course students eat at The Commons. This is popularly known as the "Cafeteria." At this place the students pay according to the articles of food ordered. During the last school year the average price of all meals eaten at the cafeteria was a little less than 15 cents a meal. Some of the short course students board at private boarding houses. The cost at these boarding places will range from \$3.50 to \$4.50 a week.

How to Get a Room and Boarding Place:

Short course students should plan to arrive in Columbia early on Monday, November 1, 1915, when entering the first term and early on Monday, January 10, 1916, when entering the second term. Students who have not been at Columbia before and who are not familiar with the town should go at once to the Y. M. C. A. Building.

On Sunday and Monday at the beginning of both terms all incoming trains will be met by representatives of the Y. M. C. A. They will escort the new students to the Y. M. C. A. Building where they can consult a directory of good rooming and boarding places. Then if it is desired these guides will take them to inspect the rooms and help them get located. Unless they have previous knowledge of a suitable rooming and boarding place students are advised to make no definite arrangements until they have consulted this directory at the Y. M. C. A. Building.

WORKING ONE'S WAY THRU THE SHORT COURSE

Students are advised not to try to work their way thru the short course. The work is so arranged that every student needs all of his time for study and classroom work. The regular price which students receive for outside work is 15 cents an hour. Any man in the short course can make his time worth vastly more than this by spending it in study. One summer's work on the farm will enable a young man to save enough to pay his expenses in the short course the following winter. Men who desire to take the short course, but who have not

the means, are advised to work on a good farm for one year, then come to Columbia prepared to put in full time in study and classroom work. The term is too short and the opportunity too rare to spend any time in outside work.

Moreover, it is difficult for short course students to obtain employment, as most of the best positions are taken by regular students who are on the ground earlier and therefore have the first opportunity at all openings which have any promise of permanency or regularity of employment. The Y. M. C. A. conducts an employment bureau and prospective short course men who must earn at least a part of their way are advised to apply early to this bureau, where some assistance may be given.

RELIGIOUS CONDITIONS AT THE UNIVERSITY

The students of the University of Missouri are a church-going class of people. More than 72 per cent of all the students registered in the University are church members and about 18 per cent more have church preferences. A hearty welcome is extended to the short course students by all the churches in Columbia. Special Bible classes are arranged for them at most of the churches. The various young peoples societies especially invite the short course students to attend and take part in their meetings.

The Young Men's Christian Association:

In addition to furnishing a list of the available rooms and boarding places the Y. M. C. A. provides in its building a social center for the short course men. The building has club rooms, parlors, reading rooms, swimming pool, bowling alley, and other features attractive to young men.

The association conducts Bible classes and religious meetings. Sunday morning meetings conducted by the Y. M. C. A. have proven one of the most attractive features in the course and have been attended during the last year by every active short course student.

MEDICAL ATTENTION FOR STUDENTS

Regularly enrolled short course students have free medical attention and hospital care. In the dispensary at Parker Memorial Hospital students may consult with and have treatment by the members of the staff of the department of clinical medicine and surgery. The attention of the same staff physicians is available to students who have to be admitted to the hospital. When surgical operations are required a moderate charge is made by the hospital for operation. No fees are paid to the staff physicians in any case. The amount of the charge in each surgical case is determined by the superintendent of

the hospital in accordance with certain general rules laid down by the Board of Curators. Under extraordinary conditions a small fee may be charged by the hospital for medical services. Vaccination is required of all students.

For additional information regarding the care of students' health at the University of Missouri consult the annual catalog, page 81.

PROTECTING THE HEALTH OF THE STUDENTS

Students in the Two-Year Winter Course in Agriculture are required to take systematic exercise under the direction of an instructor in the department of physical education at least twice a week. The new Stock Judging Pavilion is used at certain hours for this purpose. Shower baths and suitable dressing rooms are provided.

This work is given as a means of safe-guarding the health of the students. Most of the short course students come to the University directly from the farm where they have been working out of doors. A too sudden change from the active outdoor life to the indoor life of the class room is sometimes harmful to the health. By taking a small amount of systematic exercise students retain their health and are enabled to do much better class work. Because of these facts the University has made provision for the gymnasium work in the short course. The amount of time spent in taking this exercise is not enough to cause the studies to be neglected.

Basketball, indoor baseball, and other indoor games are played. Turning bars and other gymnasium apparatus are provided. At the end of each term the short course students hold an athletic carnival.

HOW TO ENTER THE SHORT COURSE

Those who expect to enter the Two-Year Winter Course in Agriculture should arrive in Columbia on Saturday or Monday of the opening week of each term. The offices of the University are not open on Sunday but the officials of the Y. M. C. A. are prepared to meet all incoming trains on Sunday and will help students get located. If possible, before reporting at the Agricultural Building the student should first secure his room and boarding place. (See page 10.)

His next step is to report at the Agricultural Building where he will register. On Monday and Tuesday of the opening week all fees will be paid and all registration conducted in the Agricultural Building. After Tuesday other arrangements will be made but in any case after securing a room the student should report at the Agricultural Building. Students will be enrolled in this building and assigned to classes. Classes will begin promptly on Tuesday morning. Students who delay registration until late in the week will miss part of the instruction.

The above instructions apply to entering either term.

CERTIFICATE OF GRADUATION

In order that a student may receive a certificate of graduation from the Two-Year Winter Course he must satisfactorily complete ninety-six units of work. Of this number sixty-nine units are prescribed. (See course of study, pp. 14-15.) The other subjects needed to complete the requirement are selected by the student from the optional courses named in connection with the course of study on pp. 14-15.

A unit is the equivalent of one classroom exercise a week thruout a term of seven weeks. Thus a class which meets three times a week gives a student three units' credit toward a certificate. A class exercise may be one or two hours in length, depending on the nature of the work.

The requirements for graduation cannot be met unless a student spends two full winters in the course. The four terms need not necessarily be taken in succession, but it is better that they should be. Neither is it necessary that a student should begin work with the opening of the fall term, but it will be somewhat to his advantage to do so.

There has been a steady increase in the size of the graduating class since 1911 when the first short course certificates were granted to a class of seven men. In 1912 this number increased to thirteen. In 1913 the graduates from the Two-Year Winter Course numbered thirty-three. In 1914 forty-three men were granted certificates and in 1915 forty men were graduated. This is growth in the right direction. The value of the Two-Year Winter Course will finally be measured in the main, not by the number of men who begin the course, but by the number who complete the entire course and receive certificates of graduation, for these are the men who receive a well-rounded course.

THE COURSE OF STUDY

In each term the student is required to take certain courses. In addition to the required courses he is permitted to choose one or more from the list of courses that are called "optional." In each term the required courses cover pretty generally the branches of agriculture found on Missouri farms. The student is given the opportunity to choose from the list of optional courses those along the lines that he is interested in most. A student does not have a full course unless he takes all the required courses and the full number of optional courses indicated for each term.

If a student enters the University, November 1, 1915, for the first time he will take the courses under *First Year, First Term*. If he returns January 10, 1916, he will take the courses under *First Year, Second Term*. If a student cannot enter at the opening of the course on November 1, 1915, he can enter without much inconvenience for the first time, Monday, January 10, 1916. If he enters then he will take

the courses listed under *First Year, Second Term* with the exception that he will take a different course in stock judging, one adapted to the beginner. If he returns for the fall term of 1916 he will then take the *First Year, First Term* courses. Those who have completed both terms of the first year will enter the *Second Year, First Term*.

All the work is thoroly practical. Much of the instruction is given by having students actually do the work under proper direction.

Following is the schedule of courses offered:

FIRST YEAR, FIRST TERM

November 1 to December 17, 1915

(Required)

	Periods a week
Cereal crops and grain judging	6
Farm dairying or plant propagation	4
Live stock judging	3
Feeding and management of live stock	5
Farm poultry management	3
(And any one of the following optional courses.)	
Woodwork	3
Forging	3
Commercial orcharding	3
Breeds of live stock	3

FIRST YEAR, SECOND TERM

January 10 to February 26, 1916

(Required)

	Periods a week
Prevention and treatment of animal diseases	5
Farm dairying or plant propagation	4
Live stock judging	3
Soil tillage	3
Animal breeding	3
(And any two of the following optional courses.)	
Woodwork	3
Forging	3
Farm poultry management	3
Poultry judging	3
Landscape gardening	3
Beef production	3
Pork production	3
Dairy cattle judging	3
Advanced woodwork	3
Advanced forging	3

SECOND YEAR, FIRST TERM

November 1 to December 19, 1915

(Required)

	Periods a week
Injurious insects	4
Infectious diseases	3
Farm accounting	5
Soil fertility	3

(And any three of the following optional courses.)

Breeds of live stock	3
Sheep production	3
Farm poultry practice	3
Horse production	3
Farm construction methods	4
Rural economics	3
Commercial orcharding	3

SECOND YEAR, SECOND TERM

January 10 to February 26, 1916

(Required)

	Periods a week
Farm orchard and garden management	4
Forage crops	4
Milk production	3
Farm machinery and engines	4

(And any three of the following optional courses.)

Advanced grain judging	3
Advanced stock judging	3
Co-operative banking	3
Incubating and brooding practice	3
Beef production	3
Soil management	3
Pork production	3
Dairy cattle judging	3
Advanced woodwork	3
Advanced forging	3
Landscape gardening	3
General farm management	3
Farm butchering, meat cutting and curing	3



Training future live stock judges.

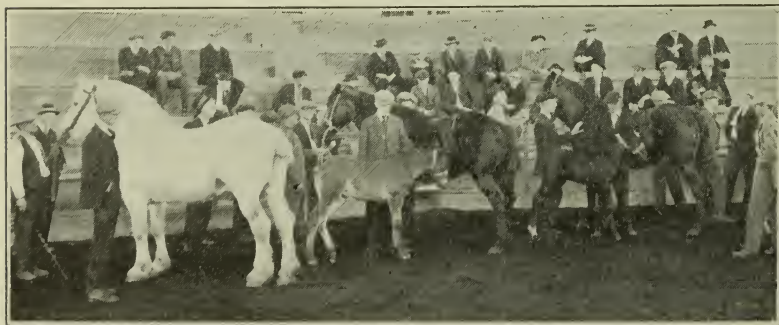
ANIMAL HUSBANDRY

Mr. MUMFORD; Mr. TROWBRIDGE; Mr. ALLISON; Mr. WEAVER;
Mr. HACKEDORN; Mr. HUGHES; Mr. BENTLEY.

1aw. Stock Judging. Required in the first term of the first year. In this course the score card will be studied with special reference to the scale of points adopted by the various breed associations. The purpose of the course together with course 2aw, is to thoroly familiarize students with the types of all the common breeds of stock. Both score card work and competitive judging are included. Three judging periods a week. Three sections.

1bw. Stock Judging. Required in the second term of the first year of those who enter then for the first time. This is a repetition of course 1aw, given in the second term for new students. Three judging periods a week. One section.

2aw. Breeds of Live Stock. Optional in the first term of either year. This course takes up the history, adaptability, feeding qualities and general utility of the leading breeds of live stock produced in this country. Three lectures a week. One section.



Animal breeding illustrated. Students studying a sire, dams, and their offspring.

3aw. Feeding and Management of Live Stock. Required in the first term of the first year. This course teaches the principles of feeding and handling farm stock. Feeding standards are carefully studied and students learn how to calculate rations for the various classes of live stock. A study is made of the composition, digestibility and relative feeding value of the various hays, grains, mill feeds, and miscellaneous feeding stuffs. The preservation and preparation of coarse fodder, and grinding, steaming, and cooking food is taken up. This subject also includes a consideration of shelter, feeding for growth or maintenance, breeding, equipment for handling, properly marketing, etc. The class is divided into four sections for this course. Five periods a week.

4bw. Animal Breeding. Required in the second term of the first year. A course in the principles and methods necessary in the successful breeding and improvement of farm animals. While this consists of the fundamental principles of breeding it is particularly planned



Judging sheep in the new Stock Judging Pavilion. Part of the men are writing the reasons for placing the sheep after having examined them.

for the practical breeder, and those phases of the work are emphasized which appeal directly to the person engaged in the production of live stock on the farm. Three periods a week.

6bw. Stock Judging. Open only to first year students who have had course 1aw. Required in the second term of the first year. A further study of breeds of animals with special attention to their relative values for the production of meat, milk, and wool or for draft and speed. This course includes a study of market types and show ring classifications, along with a detailed consideration of dif-

ferences between market and breed types. Three periods a week. Three sections.

6aw. **Live Stock Judging.** A repetition of course 6bw for students who have entered the second term in the first year and who have had course 1bw. Required in the first term of the second year of the students indicated above. Three periods a week. One section.

7bw. **Advanced Live Stock Judging.** For second-year students only. Optional in the second term of the second year. In this course students are required to place classes of live stock after the manner followed by judges at county fairs and live stock shows. There will be little work with the score card except by way of review. The student taking this course is assumed to have had courses law or 1bw and 6aw or 6bw. It is planned to take at least one trip to the farm of some prominent breeder of live stock during the term. Three periods a week. One section.

No student will be permitted to enter the following courses until he has taken course 3aw.

8bw. **Beef Production.** Optional in the second term of either year. This is a discussion of practical methods of beef production. It includes the successful practices in feeding for market, feeding for show, and the general care and management of beef cattle. Three lectures a week.

9bw. **Pork Production.** Optional in the second term of either year. Approved systems of swine management are studied in this course. A discussion of foodstuffs, with special reference to their adaptability to pork production, the feeding of hogs for market and the feeding and marketing of the commercial and pure bred breeding herd is emphasized. Three lectures a week.

10aw. **Sheep Production.** Optional in the first term of the second year. The general care and management of the breeding flock is emphasized in this course. Rearing for mutton and wool, the production of spring lambs and fattening sheep and lambs for the market are discussed. Three lectures a week.

11aw. **Horse Production.** Optional in the first term of the second year. A discussion of practical methods of horse production including breeding, growing, and marketing horses of all classes. Three lectures a week.

BUTCHERING

MR. TROWBRIDGE

1bw. **Farm Butchering, Meat Cutting and Curing.** Optional in the second term of the second year. To encourage the home curing of meats this course of instruction is offered. Actual practice in slaughtering beeves, hogs, and sheep under farm conditions is given.

This is followed by instruction and practice in cutting up the carcasses, trimming the cuts, and curing the meat. A detailed study is made of the various cuts of a carcass and the relative values of each. The course takes up in some detail the economical disposition of the various cheaper cuts. Two half-days a week.



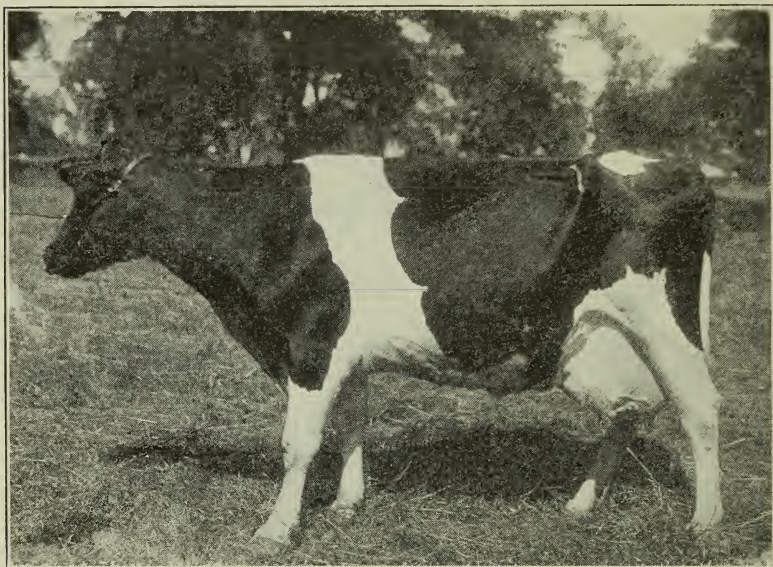
The home curing of meats is encouraged by the University. Students are taught to kill, cut up, and cure their own meats.

DAIRY HUSBANDRY

Mr. ECKLES; Mr. RINKLE; Mr. REGAN; Mr. REED; Mr. WERNER;
Mr. COMBS.

1aw and 1bw. **Farm Dairying.** Required during the first year. This course gives the student such instruction regarding dairy work as will be of value to anyone engaged in farming whether he is especially interested in the production of dairy products for market or not. The nature, composition and properties of milk are studied, its use as food is discussed and the separation of cream and butter-

making under farm conditions is given some attention. The testing of cream and milk for butter fat, how to test individual cows and how to properly handle milk and cream are given particular attention. Two lectures and two laboratory periods a week.



This cow, Carlotta Pontiac, bred by the University of Missouri has produced in eight years 115,715 pounds (13,455 gallons) of milk and 6,170 pounds of butter. Her best year's record is 22,593 pounds (2,627 gallons) of milk and 827 pounds of butter. She has produced more than 21,000 pounds of milk and 800 pounds of butter each year for the last three years.

2bw. Milk Production. Required in the second term of the second year. Practical instruction regarding the dairy cow on the farm, including adaptation of breeds for various purposes, the selection of individual cows by type and by records, and keeping milk and butter fat records are features of this course. Selecting the bull, raising calves, feeding cows, general care and management of the herd are given special emphasis. The large herd of dairy cattle belonging to the University and other nearby dairy herds are used in demonstrating and illustrating this course. Three lectures a week.

3aw. Farm Buttermaking. Instruction in the composition and properties of milk, its uses as food, milk and cream testing, care and handling of milk and cream under farm conditions, the principles and

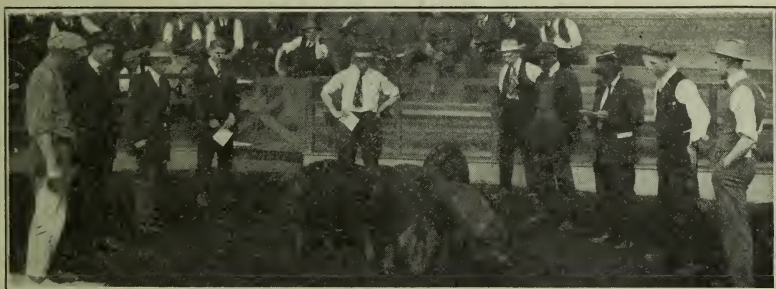
practices of buttermaking on the farm and the marketing of farm butter are the features of this course. This course is for students taking the Short Course in Home Economics. One lecture and one laboratory period a week.

4bw. **Dairy Cattle Judging.** Offered in the second term only. The points in the form and appearance of the dairy cow that have a bearing upon her ability to produce milk are studied in this course. The high producing cows in the University of Missouri dairy herd are used. Several herds of high-producing dairy cows near Columbia are also available. This course is primarily for the students taking the Special Creamerymen's Course but a limited number of others will be admitted. Three judging periods a week.

ENTOMOLOGY

Mr. HASEMAN; Mr. HOLLINGER.

1aw. **Injurious and Helpful Insects.** Required in the first term of the second year. This course trains the student to recognize the various insects that injure farm crops, how to prevent their development and how to destroy them. Some attention is paid to insects beneficial in the production of farm crops. Special attention is given



Good specimens of the leading breeds of swine are owned by the University.

the chinch bug, hessian fly, and army worm. A general discussion is given of the life history, transformation, appearance, nature of injury produced and best methods of control of the principal pests. Actual specimens of the pests are studied so that the student can easily recognize them.

A special feature of this course is a series of demonstrations and lectures on practical bee keeping on the farm. Two lectures and two laboratory periods a week.

FARM CROPS

Mr. HUTCHISON; Mr. HACKLEMAN; Mr. McDONALD; Mr. EVANS.

1aw. **Cereal Crops and Grain Judging.** Required in the first term of the first year. This course has to do with the principles concerned in the production of corn, oats, wheat, rye, barley, and other grain crops. The methods of preparing the seed bed, planting, cultivating, and harvesting these crops are considered in detail, together with methods of crop improvement. The laboratory work has to do with a study of the various types and important varieties of these crops, and the judging and grading of commercial grain. Three lectures and three laboratory periods a week.

2bw. **Forage Crops.** The production of clovers, cowpeas, soybeans, alfalfa, rape, sorghums, grasses, and other forage crops is studied in this course. Special attention is given the management of these crops and their use in cropping systems adapted to Missouri farms. Laboratory exercises consist of the study and testing of seeds. Required in second term of the second year. Three lectures and one laboratory period a week.

3bw. **Advanced Grain Judging.** Optional in the second term of the second year for second-year men only. A continuation of the laboratory work of course 1aw. Its purpose is primarily to prepare students to become grain judges. Only fourth-term students are eligible to the course. A grain judging contest is held in connection with this course and certificates awarded the best judges of grain. One lecture and two laboratory periods a week.



Students judging dairy cattle. Good specimens of Jersey, Holstein, Ayrshire and Milking Shorthorn cattle are available.

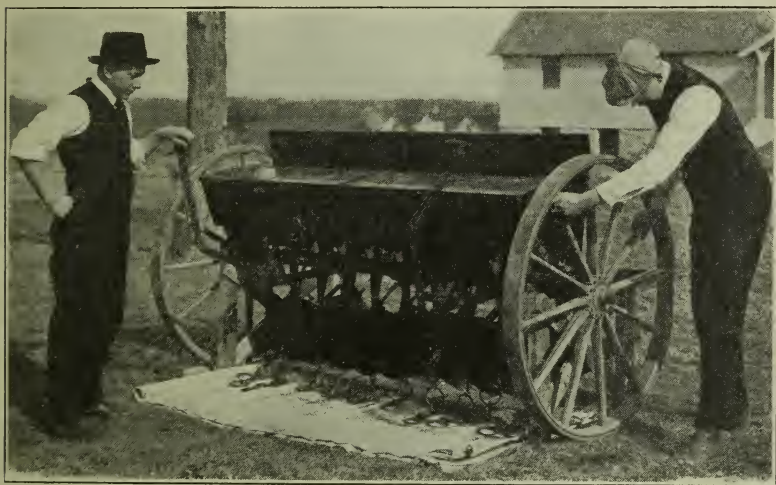
FARM MANAGEMENT

Mr. JOHNSON; Mr. GREEN.

1bw. **General Farm Management.** Optional in the second term of the second year. How to make a practical working plan of the home farm is the object of this course. Each student makes a map

of his home farm, and with this as a basis replans the practical farm operations. He considers the profitable outcome and the maintenance or increase of soil fertility as the main object. A crop rotation, the best methods for handling the crops used in this rotation, and the profitable utilization of these crops by stock will be planned. The amount of stock that can be kept under the plan will be worked out in detail. Three lectures a week.

2aw. **Farm Accounts.** Required in the first term of the second year. This course consists of thirty-five lectures the first term of the second year. It is arranged to make, first of all, a thoro study of taking inventories and keeping financial records. More time is devoted to this than any other phase of accounting because it is more important. Labor, feeding, and dairy records are also studied. Monthly statements and annual summaries of a farm business are made. Five lectures a week.



In the farm machinery laboratory. Regulating a grain drill before beginning work in the field.

FARM MECHANICS

Mr. KELLEY.

1aw. **Farm Construction Methods.** Optional in the first term of second year. The students actually build concrete walks, water troughs, fence posts and sections of foundations. They are taught how to mix and handle concrete with special reference to the proper methods of reinforcing. How to put in farm drainage and water systems is a part

of the instruction included. Two lectures and two laboratory periods a week.

2bw. Farm Machinery and Engines. Required in the second term of the second year. This course has to do with the construction and handling of farm machines and the adaptation of various forms of power to the conditions on the average farm. Practical exercises and demonstrations with various farm machines in the machinery laboratory of the University form a large part of the work in this course. Students will be given a working knowledge of the operation of gasoline engines for farm use. This course is primarily for second-year men altho a limited number of first-year men will be admitted. Two lectures and two laboratory periods a week.

Each student who takes the above courses should have a suit of overalls to wear while in class.

HORTICULTURE

Mr. WHITTEN; Mr. LAWRENCE; Mr. MAJOR; Mr. WIGGANS; Mr. GARDNER.

1aw and 1bw. Propagation of Plants. Required in the first year. The purposes of this course are to give a general knowlege of the development, structure and uses of the parts utilized in the propagation of plants. The practical methods of growing better seed thru the selection and improvement of the best seed plants, methods and practices of harvesting, storing, and testing seeds are studied. The planting of seeds, the transplanting of vegetables, the preparation and care of cuttings, budding and grafting is included. A working knowledge is given of the common and more useful methods employed in the increase of plants by use of bulbs, corms, tubers, runners, offshoots, and other organs of vegetative reproduction. Two lectures and two laboratory periods a week.

2bw. Farm Orchard and Garden Practice. Required in the second term of the second year. It is the purpose of this course to suggest plans for a home garden, including the list of varieties best adapted to our uses and their arrangement in the plot. The preparation of the soil for planting as well as the selection, trimming, planting, pruning and care of fruit trees and small fruits is studied. Seasonal and soil requirements of the varieties of vegetables most useful on the farm, together with detailed instructions concerning the planting of seeds, methods of transplanting and the setting of pot-grown plants are included. Students are taught how to collect and store fruits and vegetables, and how to protect the plants against bacteria, fungi, and insect pests thru proper culture, fumigation, and spraying. Two lectures and two laboratory periods a week.

3bw. Landscape Gardening. Optional in the second term of either year. How to decorate the farm home grounds with the common trees, shrubs and flowering plants is the object of this course. Methods

of making lawns are taught as well as what plants to grow on the lawn. The management of the decorative plants and flowers and how to prune the shade and ornamental trees are features of the work taught in this course. Three lectures a week.

4aw. **Commercial Orchardling.** Detailed instruction is given on the selection of the soil and site for the orchard. The location with reference to shipping facilities, centers of distribution and consumption and methods of securing satisfactory prices for the fruit are studied. Orchard practice in the selection and arrangement of varieties, spraying, and harvesting at the lowest possible cost together with sorting, packing and storage and the handling of the fruit from the time of picking to delivery to the distributor are features of this course. The course is specially adapted to the needs of those who are in the business of growing fruit for sale. Optional in first term of either year. Three lectures a week.

5aw. **Home Gardening.** Offered for the women in the Short Course in Home Economics. This course is planned for the woman who desires complete instruction concerning the use of a small area of ground from which a continuous, clean, well-matured supply of vegetables may be secured for immediate use, winter supply, and canning. It includes selection of varieties, soil and seasonal requirements, rate of maturity and order of succession during the season. Methods of sowing the seed, transplanting seedlings, preparation of the soil together with the use of materials to add plant food, moisture requirements of plants and how to control moisture or supply water, and methods of storing the crops are given. Two lectures a week.

POULTRY HUSBANDRY

Mr. KEMPSTER; Mr. RUCKER.

1aw. **Farm Poultry Management.** Required in the first term of the first year. This course teaches how to make more money out of the poultry on the farm, how to hatch and raise poultry, feed for egg production and handle the stock for market. Instruction is given in the most economical ways of killing and dressing for the market. The housing of chickens on the farm and methods of treating the common diseases are also discussed. Three lectures a week.

1bw. **Farm Poultry Management.** A repetition of course 1aw for those who enter the second term. Course 1aw or 1bw is required before any of the advanced poultry courses can be taken.

2aw. **Farm Poultry Practice.** Optional in the first term of the second year. For those students who are more particularly interested in farm poultry raising this course is offered. It goes more into the detail of the operations around the poultry house such as killing and dressing, making and applying louse powder, building coops, etc. The

student is taught the every day practices of a person engaged in handling poultry. One lecture and two laboratory periods a week.

3bw. Poultry Judging. Open only to those who have had course law. How to judge poultry is taught in this course. The conformation and breed characteristics of chickens is discussed from the standpoint of the poultry show and the production pen. In this course considerable attention is given to the principles of poultry breeding. Optional in the second term of either year. Three laboratory periods a week.

4bw. Incubating and Brooding Practice. Optional in the second term of the second year. This is a practice course in the hatching and raising of chickens. A critical study of incubators and brooders is made. Class is limited to twelve students. One lecture and two laboratory periods a week.

RURAL ECONOMICS

Mr. GROMER.

1aw. Principles of Rural Economics. Optional in the first term of the second year. Our governmental and commercial policies are framed to a great extent in the interest of the industries of the town and city. We have only recently awakened to the fact that the rural problem is our most important problem. Very few active farmers are members of Congress. The farmer has left the passing of laws and the shaping of governmental policies to others who know little of his needs. The problem of living in the country has been too much neglected.

It is the purpose of this course to direct attention to some of the most important features of these problems, how they may be partially corrected and also discuss some of the principles of economics in their application to agriculture. Three lectures a week.

2bw. Co-operative Banking. Optional in the second term of the second year. Must be preceded by course law, principles of rural economics. The farmers in Missouri being for the most part unorganized and the price of what they purchase not standardized, in general they are able to command only such advantageous prices as their knowledge and influence enables them to secure. Partly because of these conditions it is generally understood that they make only about half the rate of interest on their investments that they have to pay when borrowing capital. It is the intention of this course to explain how this condition of affairs may be at least partly remedied, and in addition to treat of some of the most fundamental principles of banking. Three lectures a week.

SOILS

Mr. MILLER; Mr. LECLAIR; Mr. HUDELSON; Mr. DULEY.

1bw. Soil Tillage. Required in the second term of the first year. In this course the student learns the best methods of tilling and cultivating the soil. The laws of physics that affect the handling of soils are studied and illustrated by laboratory and field practice. The methods of controlling the moisture in the soil is given special emphasis. How to prepare the seed bed, eradicate weeds, and maintain good tilth are other features of the work. Two lectures and one laboratory period a week.

2aw. Soil Fertility, Manures, and Fertilizers. Required in the first term of the second year. This course includes a discussion of soil fertility and the methods of maintaining the productivity of soils. The relation of various crops to soil exhaustion and to soil improvement is considered and the methods of handling manures and fertilizers are given particular attention. The course is designed to bring out the principles of soil handling and fertilizing in order to maintain the highest state of productiveness. The results of experiments on various fields being conducted by the Missouri Agricultural Experiment Station at Columbia and in different parts of Missouri are of great service in indicating the proper treatment for the different soil types of the state. Practice in mixing fertilizers and in making simple tests of soils will be a feature of this course. Two lectures and one laboratory period a week.

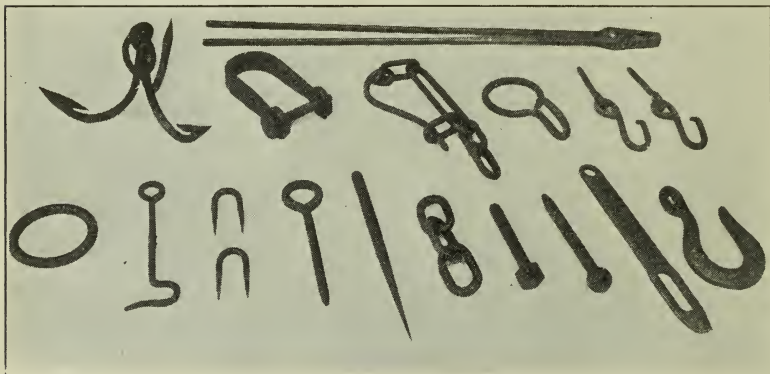
3bw. Soil Management. Optional in the second term of the second year. After having been thoroly drilled in the principles laid down in the course on soil tillage and fertility, if he desires the student can take this course. It is primarily devoted to the practical application of the principles studied in the courses mentioned above. The work includes a detailed discussion of the handling of lands from the standpoint of seed bed preparation and tillage and more particularly the use of lime, fertilizers and manures as related to the various systems of soil management practiced in Missouri. Three lectures a week.

SHOP WORK

Mr. GRIFFITH.

1aw and 1bw. Woodwork. Optional in both terms, either year. Students are taught the use and care of tools, the principles of carpentry with special reference to carpentry on the farm. Before the end of the course practical instruction is given in house framing, the frame of a house being actually cut out and put together. Three laboratory periods a week.

2aw and 2bw. **Forging.** Optional in both terms, either year. This course includes instruction in welding, bending, forming and drawing iron, and tempering steel. In applying these principles, constant reference will be had to uses on the farm. After successfully completing this course students are able to do simple repair work with a portable forge such as can be used on the average farm. Three laboratory periods a week.



Some of the handy pieces of iron work made by short course men in the forging class.

3bw. **Advanced Woodwork.** Optional in the second term. This is a continuation of courses 1aw and 1bw. The student goes into the work more in detail becoming more proficient in the principles and practice of carpentry as applied to the average farm. Class limited to twenty students and open only to students who have had course 1aw or 1bw. Three laboratory periods a week.

4bw. **Advanced Forging.** Optional in the second term. For those students who desire to get more practice in iron work this course is offered. Class limited to twenty students and open only to those who have had course 2aw or 2bw. Three laboratory periods a week.

Each student who takes the above courses should have a suit of overalls to wear while in class.

VETERINARY SCIENCE

Mr. CONNAWAY; Mr. BACKUS; Mr. GINGERY.

1bw. **Prevention and Treatment of Animal Diseases.** Required in the second term of the first year. A study of the structure and functions of the animal body, hygiene of farm animals, indications of

disease, general care and treatment of sick animals, lameness, simple surgical procedures, diseases incident to pregnancy, including a brief study of the skeletons of farm animals, the casting and control of animals, dressing of wounds, preparation and application of bandages, administration of medicines, dehorning of cattle, castration, spaying. Two lectures and two laboratory periods a week.



Dehorning cattle in the veterinary class. Farmers frequently drive their stock in to the college to have them dehorned.

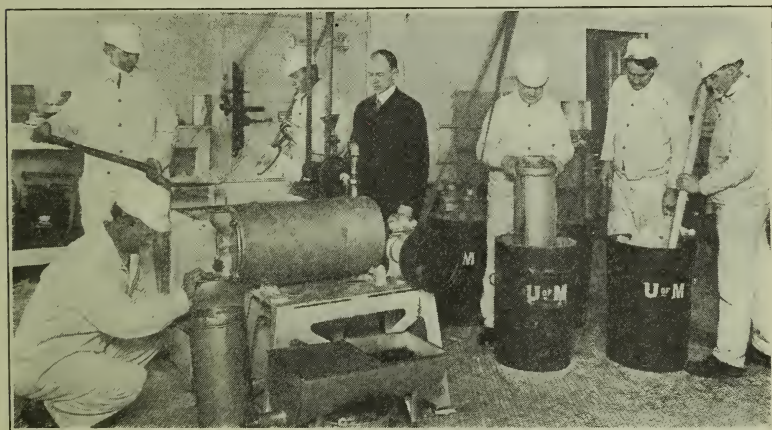
2aw. **Infectious Diseases, Medicine and Surgery.** Required in the first term of the second year. The following subjects will be considered: The teeth, how to tell the age of an animal by its teeth, also their defects and treatment; diseases of the digestive organs,

indigestion, colic, etc.; diseases and injuries of the bones, limbs and joints; diseases of the skin and eyes; diseases of the respiratory and nervous system; parasites and contagious diseases. The laboratory and clinical demonstrations will include dressing of the teeth, use of antiseptics, methods of disinfection, shoeing of horses, vaccinating against black leg, immunizing against hog cholera, methods of making post mortem examinations. Tuberculosis and hog cholera will receive special attention. Two lectures and one laboratory period a week.

Special Creamerymen's Course

Since the establishment of the department of dairy husbandry in 1901 instruction has been given in creamery work each year. The rapid development of the dairy industry in Missouri in recent years has caused such a demand for trained creamery workers that a special course in creamery work has been established. The Special Creamerymen's Course is offered for those who wish to prepare themselves for work in the creameries in this state. The course as outlined also fits the student for a more successful operation of large private dairies and ice cream factories. In 1915 ten men took this course. All of these were able to secure good positions within a month after the close of the course.

The course begins January 10, 1916, and ends February 26. The laboratory fee for this course is \$6. The total cost of the course need not exceed \$60.



The ice cream industry is rapidly growing. In this course ice cream makers are being trained.

SCHEDULE OF STUDIES

	Lecture	Laboratory
Elements of dairying	14	14
Milk production	21	
Testing dairy products	5	15
Dairy bacteriology	10	
Creamery buttermaking	10	45
Ice cream making	10	10
Creamery calculation	14	
Dairy cattle judging		21
Inspection trips		

STATEMENT OF STUDIES

Elements of Dairying. This subject includes fourteen lecture periods and fourteen laboratory periods. A description of the work covered is given on page 19 under the heading *Farm Dairying*.

Milk Production. This subject includes twenty-one lecture periods. A description of this subject is given under *Milk Production* on page 20.

Testing Dairy Products. In this course the student learns the proper methods of testing milk and cream by the Babcock method. Methods of properly taking and preserving samples are taught. The various methods of testing butter for the moisture and salt content, the proper use of the acid test and various other tests that are applied to creamery practice are taken up.

Dairy Bacteriology. This subject will be given by means of lectures and demonstrations. The object is to teach the student the principles on which the proper handling of milk, cream, and other dairy products is based. Special attention will be given to the means by which milk becomes contaminated in the barn and how it should be handled to keep out impurities. The ripening of cream, making of starters and a study of the causes of variation in the flavor of butter is part of the instruction given in this subject.

Ice Cream Making. More attention is given each year to instruction in this subject because of the rapid development of this industry. Facilities are at hand to give good instruction along this line. Ice cream is made regularly and supplied to The Commons. Lectures are given explaining the principles and proper methods to be followed in making the best product and the student has opportunity by actual experience to learn how the work is done. Brick ice cream, sherberts, ices, frozen puddings, etc., are made by the students in this course.

Creamery Arithmetic. Fourteen periods are devoted to this subject. Its aim is to train the student in problems attached to creamery work. Problems such as the standardization of cream, checking up on creamery overrun, determination of the heating and cooling surface on different cream ripeners, figuring speeds of shafting, etc., are some of the problems taken up.

Dairy Cattle Judging. Described under *Dairy Cattle Judging* on page 21.

Inspection Trips. Several trips will be made to up-to-date dairies in and about Columbia with a visit to Columbia's leading milk distributing plant and ice cream factory. These places are within easy walking distance of the dairy building and will take but a few hours. One trip will be taken to some up-to-date creamery and ice cream plant in this state. This trip will require about one day and a half. Students should come provided with \$5 to make this trip. It is required of all students in this special course.

Short Course in Home Economics for Women

The home is the most important factor in farm life. The problem of how to keep the boy on the farm is exceeded in importance only by one other and that is: how to keep the girl in the home. Thinking men everywhere have agreed that the solution of the problem so far as the boy is concerned lies in training him to be a skilled farmer, and in showing him that there is more to farming than mere manual labor.



How to bake bread is one of the things taught in the Short Course for Women.

Surely the girl should be given at least an equal opportunity to learn of the new ideas in the management of home affairs. The waste of material things in the home and still more important the waste

of time, strength, and energy, is generally the result of not knowing how to make the best of the resources at hand. It is for the purpose of securing a more economical administration of household affairs in these different lines that the course is offered.

PLAN OF THE COURSE

The Short Course for Women lasts for seven weeks. It begins November 1, 1915, and ends December 17, 1915. Work is given in those subjects with which a woman as a home maker should be familiar. Economy in the management of household affairs is the key note of the whole course. The student learns how to save materials, time, and labor. By means of lectures she is taught why certain things and certain methods are better than others. Then, by actually doing the work in the various laboratories, she applies the knowledge gained in the lecture room to practical cooking, sewing, millinery, butter making, etc. It is a practical course which trains the hand as well as the intellect. It offers the kind of knowledge which a woman can apply in her every-day housework and her every-day relations to the farm.

Students are given an opportunity to choose the special studies in which they are most interested. The department of home economics offers studies arranged specially for the Short Course for Women. Students may select one or any number of these subjects. In addition all the studies in the Two-Year Winter Course in Agriculture are open to women students. The courses in farm buttermaking, poultry raising, fruit growing and home gardening are especially recommended. It is expected that women students will choose part of their studies in home economics and part in agriculture.

WHO MAY ATTEND

Any woman more than 16 years old may attend. Older women who have had the care and responsibility of managing a house will find much that will interest them and on account of their experience will be able to derive even greater benefit from the course than girls who are less experienced. It is desirable that all students should have at least a common school education, but an earnest and sincere purpose is considered above other prerequisites. There are no entrance examinations.

FEES AND EXPENSES

There is no charge for tuition, but each student pays an incidental fee of \$6 for the term of seven weeks. The following laboratory fees are required. Preparation of food, \$2.50; planning and preparation of meals, \$2.50; canning and preserving, \$1; sewing, 50 cents; millinery, 50 cents; dressmaking, 50 cents.

Rooms may be secured in Columbia at prices ranging from \$8 to \$14 a month. Where two persons occupy the same room, each pays one-half of the above sum. The price paid depends upon the size of the room and its conveniences. Board may be had at prices varying from \$3.50 to \$4.50 a week.

A conservative estimate of the expenses while in Columbia is:

Fees	\$ 9.50
Room (with roommate)	10.00
Board	30.00
Books	3.50
Laundry	4.00
Total	<u>\$57.00</u>

WHAT TO BRING

The landladies furnish bed linen and covers, but each student is expected to bring her own towels. An extra blanket will usually be acceptable. For the course in preparation of food at least two plain white aprons will be needed. These should be plainly made, buttoning rather than tying at the belt. All equipment for the sewing and millinery classes will be furnished by the University. The material for the suit of underwear and simple dress which will be made in the sewing class may be brought along or purchased here. A long-sleeved gingham apron should be brought.

WHEN YOU GET HERE

All students who expect to enter the Short Course for Women should write to the Department of Home Economics, Gordon Hotel Building, Columbia, Missouri, several days in advance stating just when they will arrive. Those who make these arrangements will be met by members of the Home Economics Club or of the Y. W. C. A. In case no such arrangements have been made previous to arriving in Columbia, new students should go direct to the Gordon Hotel Building.

Students should plan to reach Columbia on Monday, November 1, 1915. Classes will begin promptly on Tuesday, November 2. The offices of the University are not open on Sunday. Students who come in on that day will have some difficulty in locating desirable and convenient rooming and boarding places. Each student in the Short Course for Women will receive the personal attention of some member of the faculty or of the Home Economics Club or Y. W. C. A. in the selection of her rooming and boarding place if she desires. Every effort should be made to reach here early enough on Monday to complete the registration and get permanently located in order to attend classes Tuesday morning.

STATEMENT OF COURSES

Miss STANLEY; Miss RONZONE; Miss KNEELAND; Miss SPALDING.

1w. Preparation of Food. The student studies the composition of food and how to prepare it for use. This course aims to make the student independent of the recipe by teaching general combining proportions and the principles underlying the preparation of various typical dishes. In it a careful study of sugar, fruits, starch, vegetables, milk, eggs, cheese, and salads will be made. Five times a week.

11w. Planning and Preparation of Meals. Must be preceded or accompanied by course 1w and 2w. This course will consider the planning of a well-balanced meal and its systematic preparation. Its purpose is to give practice in home cooking. It will include the study of the food needed for one person each day, and its proper division among the meals of the day. These meals will be planned at various costs, prepared, and served. Three times a week.

30w. Canning and Preserving. In this course the students are thoroly trained in the methods of successfully canning foods. A study is made of the causes of the spoiling of food and best methods of preservation. The many possibilities for increasing the food supply of the home and reducing the cost of living thereby will be carefully considered. As much time as possible will be spent in practical work. Twice a week.

50w. Sewing. This course makes it possible for the student to plan her own underwear, to draft patterns for or adjust a ready-made pattern, and to cut, tie, make, and finish garments. Enough of hand work is given to enable the student to finish neatly the garments made, and to keep all clothes in repair. The comparative cost of different grades of material and methods of making are considered.

51w. The Dress Problem. The student should have some experience in sewing before entering this course. The selection of materials and design for a simple dress, an underskirt, and a hat, and the making of these are the features of this course. A comparison will be made of the cost of ready-made dresses and those made at home. Some time will be spent on mending and daily care of clothing. The cost of the necessary clothing will be estimated. Three times a week.

60w. Preventive Medicine. In this course the aim is to give the general rules of public health and personal hygiene with the idea of enabling the students to guard against disease and increase their health. Two times a week.

61w. Home Care of the Sick. Considering first the care of the patient, the topics discussed will be: Choice and preparation of the sick room, care of the patient, bathing the patient, making the patient's bed, and the importance of carrying out the doctor's orders implicitly. Next, as so many diseases are transmissible, the prevention of further con-

tagion will be considered, isolation of patient, disinfection of anything removed from room, and care of room after the recovery of the patient. Special attention will be given to the care of the patient during certain more common diseases, as tuberculosis, typhoid and pneumonia, in which the nursing is such an important factor. Two times a week.

70w. Art in Every Day Life. The study of a few of the basic principles of art and design and their application to every day life. Twice a week.

1aw. Farm Poultry Management (see page 25).

3aw. Farm Butter Making (see page 20).

5aw. Home Gardening (see page 25).

The following courses are planned for those who desire to return to the University for a second course of instruction in home economics.

2w. Preparation of Food. A continuation of course 1w. Study of preparation of meats, meat substitutes, gelatin desserts, batters and doughs. This course is offered for those who may return for the short course after having attended one term. Five times a week.

15w. Household Management. A study of the problems entering into the management of a home. Equipment, methods of work and family budgets will be considered. The students must have had courses 1w and 11w before they will be given this course. It is also for those who return to the short course a second time. Twice a week.

52w. Dressmaking. Courses 50w and 51w or their equivalent should be taken before this course. In this course a more elaborate dress will be planned and made. Special attention will be paid to the application of design to dressmaking. This course is for those who attend a second time.

62w. House Sanitation. Application of principles of sanitation to the home. Special study of ventilation, methods of lighting, heating, the water supply, plumbing and sewage disposal. Course 60w is required in advance of this course. For those who return for a second time. Twice a week.

71w. House Planning and Furnishing. Course 70w is required in advance of this course. A study of the plan of the house from the standpoint of art, health, and convenience. A study of the furnishing from these same three standpoints. Special attention will be given to the approximate cost of furnishing a house.

EQUIPMENT USED IN INSTRUCTION

All the equipment of the University that is needed in teaching short course students is available for that purpose. Some of the equipment which is in more general use is described below.

BUILDINGS

Agricultural Building:

A two-story stone structure with a high basement and an auditorium seating 500 persons. More than 1,000 students may be accommodated at one time in classrooms and laboratories. The building includes offices of the dean and director, the State Board of Agriculture including the state veterinarian, the seed-testing laboratory, the agricultural library, the departments of soils, farm crops, animal husbandry, farm management, rural economics, and the agricultural extension service. The short course men make their headquarters in this building.

Horticultural Building:

A stone building, two stories and a well-lighted basement with plant house and insect room, classrooms, laboratories, offices and preparation rooms for horticulture and entomology. In this building students learn how to make grafts and buddings and other methods of propagating plants, study methods of growing fruits and how to control insect pests of farm crops.

Dairy Building:

A stone building, two stories with cheese-curing room in the basement, rooms for creamery work, cheese making, dairy work, milk-testing laboratory, offices, and classrooms.

Gordon Hotel Building:

The department of home economics is housed in this building which is leased by the University. Lecture rooms and laboratories for the teaching of the various branches of home economics are provided.

Live Stock Judging Pavilion:

A new Live Stock Judging Pavilion is available for the instruction in live stock judging. This building is adjacent to barns on the University farm. It is of steel and wood construction, the frame work being of steel. The outside dimensions are 90x160 feet. The arena is 50x120 feet. It has a seating capacity of 1500. The arena can be divided by dropping a large curtain, thus making it possible to hold two large classes in stock judging at the same time. The building includes, in addition, offices, practicum rooms, locker rooms, and shower baths. During four months of the winter, it is also used as a gymnasium for the short course students.

Greenhouses:

Six greenhouses are available for instruction and investigation. Three greenhouses, each 25x100 feet and two, each 16x100 feet, and one 25x50 embracing a total of 10,350 square feet under glass are used by the departments of horticulture, entomology, botany, soils, and farm crops. In addition to this there are 2000 square feet of hot bed and cold frame space under glass. This glass space affords facilities for the short course students to put into practice things taught in the classroom that cannot be observed in the field in winter.



In the classroom students are taught how to feed stock. On the University Farm they are shown how the application of the teaching works out.

Veterinary Building:

The veterinary department is housed in a new three-story building devoted exclusively to investigation and instruction in veterinary science. The building contains laboratories for anatomy, physiology, investigations in contagious and infectious diseases, the preparation of hog cholera serum, and operating rooms where short course men learn to perform simple surgical operations.

Poultry Building:

A two-story stone building, including general office, incubator room equipped with various types of incubators, classrooms, and laboratory.

The poultry department has one fifteen-pen laying and breeding house, a feed house with killing pen in the basement, two farm poultry houses, one experimental breeding house, and ten portable colony houses. Several hundred fowls, representing the popular varieties, are kept for

instructional and experimental purposes so that students who are interested in raising high class poultry have ample opportunity for study.

Horse Barn:

This is a large stone basement barn originally designed for a beef cattle barn. It has been recently remodeled. It contains a number of box stalls, open stalls and a convenient harness room. A 250-ton stone silo is in connection. Adjoining it is a large machinery shed where the wagons and farm machinery used in operating the farm are housed.



Sir Korndyke Hengerveld De Kol, head of the Holstein herd. He has sired thirty-five Advanced Registry daughters and seven proven sons. Three of his daughters have produced more than 700 pounds of butter in a year when two years old.

Dairy Barn:

The dairy barn is modern in every detail. It has room for seventy-five cows. It is equipped with box stalls, calf pens and the usual stanchion equipment for cows. Large feed bins are located in the loft, from which mixed feed is carried in chutes to the feed room. In connection are two concrete silos with a capacity of 130 tons each.

Sheep Barn:

The sheep barn has been recently remodeled and enlarged. Further improvement will be made before the opening of the 1915-16 session. It is of sufficient size to accommodate the flocks of pure bred sheep which are maintained for instructional and experimental purposes.

Hog Barn:

This is a stone and frame barn built to accommodate breeding animals. It is equipped with concrete floors, iron pen divisions, dipping tanks, scales, and feed cookers.

Beef Cattle Sheds:

The beef cattle are partly housed in a long feeding shed. The shed is divided into fifteen divisions with a lot in connection with each. This arrangement is to accommodate the cattle for feeding experiments.

LABORATORIES

Farm Machinery:

A large stone building is equipped with the latest types of tillage machines, self-binders, mowers, corn planters, hay loaders, manure spreaders, and gasoline engines. Instruction in farm construction methods is also given in this building.

Meat Cutting:

A large room is set aside in Schweitzer Hall for instruction in farm butchering. Farm animals are slaughtered out in the open and brought to this room where they are cut up. It is well equipped affording ample facilities for instruction in home meat curing.

Food Preparation:

This is the room in which cooking is taught. It is equipped with work tables for twenty-four students. Each table is equipped with necessary pans, pots, knives, and other cooking utensils. Several ranges are a part of the equipment of this laboratory. The cooking of meats and vegetables and the baking of breads, pastry and cakes and the preparation of full meals is taught in this laboratory.

Sewing:

Two large rooms in the Gordon Hotel Building are equipped as sewing laboratories. A number of sewing machines of popular make and of late pattern are available. The laboratories are also equipped with dress forms, tables for drafting and cutting patterns and dresses, electric irons and ironing boards used in pressing finished articles and the numerous other smaller articles of equipment necessary.

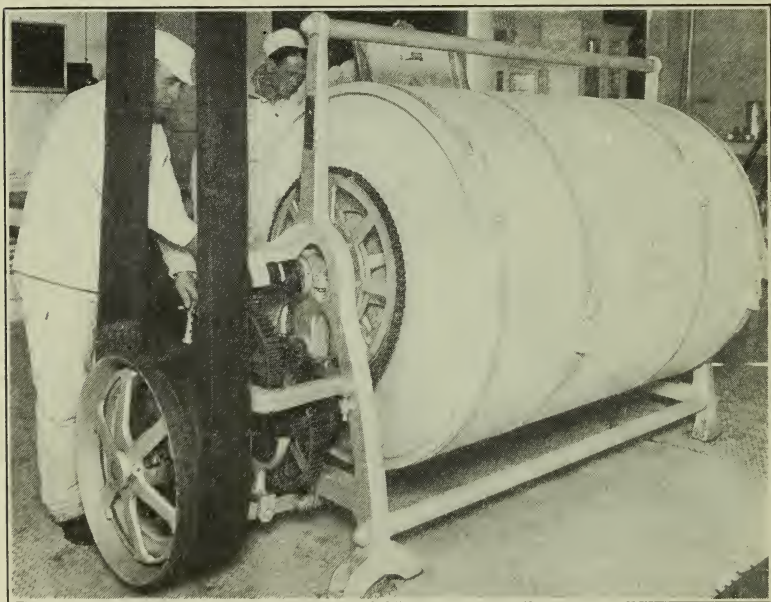
Entomology:

The laboratories and insect rooms are located in the Horticultural Building and are supplied with microscopes, dissecting instruments,

breeding cages, spraying machines, and insecticides. The museum contains collections of several thousand species of the more injurious and beneficial insects, arranged to illustrate their habits of work and life history. This equipment is all available for study.

Horticulture:

The horticultural laboratories occupy about 6,000 square feet of forcing-space under glass, a laboratory for the propagation of dormant plants, and storage room for cuttings, bulbs, stocks, and scions. The out-of-door collection on the horticultural grounds comprises about one thousand varieties of fruits, ornamental shrubs and trees for a study of planting, pruning, cultivating, and spraying.



Students in the creamerymen's course learn to operate the power churns.

In addition, eighty acres in the loess soil formation adjacent to Columbia is being developed in orchards, vineyards, etc., of a size to demonstrate the best fruit growing methods on a commercial scale. It also comprises a large collection of young seedling tree fruits which are the result of extensive breeding experiments now being conducted by the department.

Farm Crops:

The laboratories for instructional work include a large and well-equipped laboratory for the study and exhibition of the various types and most important varieties of farm crops, including material and equipment for the judging, grading, and handling of grains, a room for storing and fumigating classroom material, a germinating room equipped with germinators, a seed house, and a seed testing laboratory maintained in co-operation with the U. S. Department of Agriculture. The department also maintains a plant garden in which are grown the various types and principal varieties of all farm crops, together with the most prominent wild forms to which they are related.

Dairy Husbandry:

Facilities for instruction in creamery work include power separators, churns, pasteurizers, sterilizers, and butter printers; a cheese room provided with vats, cheese presses, and curing room; cream separators, milk testing apparatus, and churns; refrigerating plant and cold storage; a laboratory for instruction in dairy bacteriology.

From 500 to 1,000 pounds of butter are manufactured each week thruout the year.

Soils:

The facilities for instructional work in soils include a large soils laboratory for the required course of instruction, balance rooms, and storage rooms. A plant house 30 by 65 feet is provided for special experiments by students. In addition, the soil experiments in progress on the Agricultural Experiment Station field are studied while the results of the soil survey and of the outlying soil experiment fields are used to good advantage in teaching the short course students how to handle Missouri soils.

University Serum Farm:

A new hog-cholera-serum plant will be in operation at the opening of the 1915-16 session. This is located on a 90-acre farm about three miles north of the University farm on the Wabash railroad. It is one of the most modern plants of its kind in the United States. The plant has a capacity of 50,000,000 cubic centimeters of serum a year. When at full capacity 1500 hyper-immune hogs will be kept. The College of Agriculture will be able to meet any emergency when it is in operation. With this equipment the students in the College of Agriculture will be able to thoroly study the methods of controlling and eradicating hog cholera as well as the manufacture of serum.

AGRICULTURAL LIBRARY

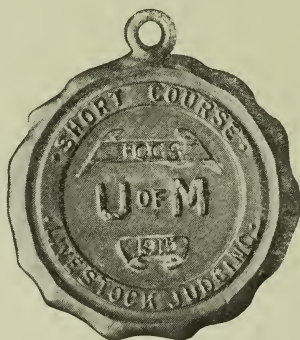
Altogether there are about 12,300 books relating to all phases of farming available for study. In the agricultural library there may be found current files of all prominent American farm papers, experiment

station bulletins, reports of the national Department of Agriculture, and of various agricultural societies of Missouri and other states. The library is open to all short course students at all times and affords a splendid opportunity for them to become familiar with the choicest farm literature. It is located in the Agricultural Building.

STUDENT ACTIVITIES

Short Course Literary Society:

All students taking the Two-Year Winter Course in Agriculture are urged to become members of the Short Course Literary Society. This organization is entirely under the control of short course students, who elect their own officers, make their own rules and regulations, appoint committees and transact the usual business of such a society. Meetings are held every Friday evening at which a program consisting of music, recitations, readings and debates is presented. It furnishes one of the most enjoyable and profitable features of the course and no student should fail to take advantage of the opportunities it offers.



Gold medals similar to the one above are awarded each year to the best judges of hogs, horses, sheep, and cattle in the annual Live Stock Judging Contest.

Other Organizations:

The short course offers opportunities to become familiar with the work and purposes of the Grange, the Farmers' Union, and numerous other state and local farmers' societies, all of which are open to students of the short course. Many will find it distinctly to their personal advantage to become members of one or more of these organizations.

Live Stock Judging Contest:

A live stock judging contest is held at the close of the short course. All the second-year men who have had the course in advanced live

stock judging are eligible to this contest. Gold medals are awarded to the students ranking as the best judges of horses, cattle, sheep, and hogs. The man who wins a medal in this contest has something as a reward for his perseverance and study of which he will always be proud.



The winners in the annual Live Stock Judging Contest.

Lower row, left to right: M. L. Remer of Eldorado Springs; G. A. Tabor of Warrensburg, and H. O. Lawler of Sheridan. These were men tied for the highest average score.

Top row, left to right: I. B. Hoberecht, Sedalia, cattle; Abel Hensel, Deepwater, hogs; B. F. Vaughn, Woolridge, horses; and H. S. Cunningham, Farmington, sheep. These men won the gold medals offered for the best judges of cattle, hogs, sheep and horses.

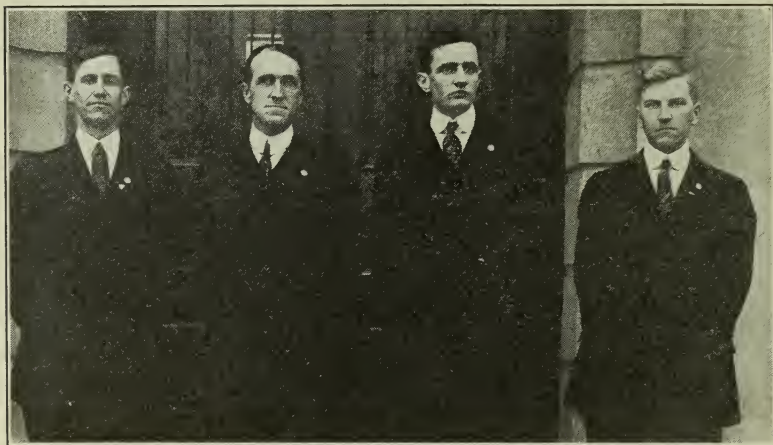
These medals are given by Missouri live stock breeders who are interested in seeing young men trained in better methods of live stock production. Each year the medals are offered by different breeders. Last year the medal for the best judge of hogs was given by W. B. Wallace of Bunclenton, Mo. The one for the best judge of horses was given by F. L. Cosby of Mexico, Mo. R. W. Brown of Carrollton, Mo., gave the one for the best judge of beef cattle and C. B. Walker of Memphis, Mo., gave the one for the best sheep judge.

Grain Judging Contest:

At the close of the Two-Year Winter Course in Agriculture each year there is held a grain judging contest in which all second-year men are eligible to compete. This contest is prepared with the idea

of giving a fitting test to the students' ability as a judge of corn, small grain and seeds and is intended to include several of the important classes of the better county and state fairs.

In addition to the contest an opportunity is afforded those students who are members of the Missouri Corn Growers' Association to take an examination for certified grain judges. All successful contestants who are members of the Missouri Corn Growers' Association are awarded judges certificates for one, two, three, or five years, depending upon the grade made in the examination.



These four men of the 1915 graduating class passed a satisfactory examination and are now certified judges of the Missouri Corn Growers' Association. From left to right: C. A. Rocklage, Marthasville; C. J. Smith, Greenwood; J. R. Mevey, Carthage; M. E. Neher, Leeton.

Short Course Banquet:

Each year at the end of the second term short course men hold a banquet. Practically all the students in the short course attend this banquet. Talks are made by short course men and members of the faculty. This is one of the most enjoyable events of the short course year and is looked forward to with anticipation by all, especially those who have attended one before.

FOUR-YEAR CURRICULA IN AGRICULTURE

Students who have had the equivalent of a four-year high school training are advised to enter one of the regular four-year curricula in agriculture or curriculum in forestry, rather than the short course. The opportunities for graduates of the longer courses are unlimited. The college has not been able to supply the demand for farm managers, teachers in agricultural schools, investigators in experiment stations, scientific aids in the United States Department of Agriculture, foresters, farmers' institute lecturers, and agricultural journalists.

One of the recognized functions of the College of Agriculture in its long courses is to train for actual farm work. The University of Missouri believes that any one who is to manage a good Missouri farm is entitled to the same high grade of instruction as is the lawyer, the physician, the preacher, or the teacher. Every important phase of farming is given careful attention—stock raising, fruit growing, grain farming, dairying, poultry raising, drainage, crop rotation, and business management.

Fifteen units, the equivalent of a four-year high school course, are required for admission to the regular curricula in agriculture and forestry. A unit is the equivalent of a high school subject pursued five periods a week for at least thirty-six weeks.

Applicants for admission who are deficient in a small portion of the requirements may be admitted conditionally at the discretion of the dean of the University faculty.

Mature men and women may be admitted to the College of Agriculture for special study in such subjects as they are prepared to pursue with profit to themselves. Such students must be at least 21 years old. Special students are not candidates for degrees and cannot become such until they have fulfilled all requirements for admission. Entrance cards for special students are issued by the dean of the University faculty, to whom applications for admission should be sent.

For further information in reference to admission, write to the Dean of the University Faculty, Columbia, Missouri.

FARMERS' SHORT COURSE

During the first week in January each year the college offers a short course in agriculture for farmers in connection with the Farmers' Week Program arranged in co-operation with the State Board of Agriculture. In this course special lectures and demonstrations in soils and farm crops, animal husbandry, dairying, horticulture, and poultry farming are given in the classrooms, laboratories, and live stock judging pavilion belonging to the University. Farmers to the number of 2810 were enrolled for this course in 1915. Among the farmers attending there were representatives from 18 states. This course will be given again January 3 to 7, 1916.

INFORMATION ABOUT THE UNIVERSITY OF MISSOURI

The fundamental aim of the University of Missouri is the development of the highest and most efficient type of citizen. For the purpose of attaining its aim, the University furnishes ample facilities for liberal education and for thoro professional training. The University is a part of the public educational system of the state.

ORGANIZATION

The work of the University is now carried on in the following divisions:

- College of Arts and Science
- College of Agriculture
- School of Education
- School of Law
- School of Medicine
- School of Engineering
- School of Mines and Metallurgy
- School of Journalism
- School of Commerce
- Graduate School
- Extension Division

All of these divisions are at Columbia, with the exception of the School of Mines and Metallurgy, which is located at Rolla. In addition, emphasis is given particular lines of work by the establishment of minor divisions, the chief of which are the Agricultural Experiment Station, the Engineering Experiment Station, and the Missouri State Military School.

LOCATION

The University of Missouri is located at Columbia, situated half way between St. Louis and Kansas City, near the center of the state. It is reached by the Wabash and by the Missouri, Kansas and Texas railways. Columbia is a progressive and prosperous town having doubled its population in the last few years.

Columbia may be characterized as a town of schools, homes, and churches, with enough of industrialism to make it efficient. It offers the conveniences of a larger city without the counter attractions. The student is a predominant factor in Columbia.

EQUIPMENT

The University grounds cover more than 800 acres. The main divisions are in the west campus, the east campus, the athletic fields, and the University farm.

The following University buildings are located at Columbia: Academic Hall; Laws Observatory; separate buildings for chemistry, physics, biology, commerce and geology, engineering, manual arts, law; two power houses; Library Building; Medical Laboratory Building; Parker Memorial Hospital; Agricultural Building; Horticultural Building; Schweitzer Hall for agricultural chemistry; green houses; Live Stock Judging, Poultry, Dairy, Farm Machinery, and Veterinary Buildings; the University farm barns and buildings; Switzler Hall for the School of Journalism; Gordon Hotel Building for home economics; Benton and Lathrop Halls, dormitories for men; Read Hall and Sampson Hall, dormitories for women; Rothwell Gymnasium; the houses for the President of the University and the Dean of the Faculty of Agriculture; the High School and the Elementary School buildings, used for practice schools in the School of Education.

FOR FURTHER INFORMATION

For further information concerning the Two-Year Winter Course in Agriculture, the Special Creamerymen's Course, or the Short Course for Women, address

P. M. BRANDT,
SUPERINTENDENT OF SHORT COURSES,
UNIVERSITY OF MISSOURI,
COLUMBIA, MISSOURI.

Full information regarding the University is given in the catalog, which will be sent on request without charge. For this or special bulletins of the College of Arts and Science, College of Agriculture, School of Education, School of Law, School of Medicine, School of Engineering, School of Journalism, School of Commerce, Extension Division, and the Graduate School, write to

DEAN OF THE UNIVERSITY FACULTY,
UNIVERSITY OF MISSOURI,
COLUMBIA, MISSOURI.

UNIVERSITY CALENDAR

AT COLUMBIA

1915

Summer Session

June 10.....Thursday, registration
 June 11.....Friday, organization of classes
 August 6.....Friday, examinations
 August 7.....Saturday, entrance examinations

First Semester

September 13, 14, 15.....Monday, Tuesday and Wednesday, entrance
 examinations and registration
 September 16.....Thursday, 8 a. m., class work in all divisions
 begins
 September 16.....Thursday, 10 a. m., opening convocation
 Nov. 1 to Dec. 17.....First term, short course in agriculture
 November 25.....Thursday, Thanksgiving, holiday
 December 17.....Friday, 4 p. m., to }
 1916 } Christmas holidays
 January 4.....Tuesday, 8 a. m. }
 Jan. 10 to Feb. 26.....Second term, short course in agriculture
 January 22.....Saturday, to }
 January 29.....Saturday, } Mid-year examinations
 January 27, 28, 29.....Thursday, Friday, and Saturday, entrance
 examinations

Second Semester

Jan. 31, Feb. 1.....Monday and Tuesday, registration, second
 semester
 February 2.....Wednesday, 8 a. m., class work in all divi-
 sions begins
 February 3.....Thursday, 10 a. m., opening convocation
 February 22.....Tuesday, Washington's Birthday, holiday
 April 19.....Wednesday, 4 p. m., to }
 } Easter holidays
 April 25.....Tuesday, 8 a. m. }
 May 28.....Sunday, baccalaureate address
 June 1.....Thursday, commencement day
 June 2.....Friday, to }
 } Final examinations
 June 9.....Friday }

THE
UNIVERSITY OF MISSOURI
BULLETIN

GENERAL SERIES

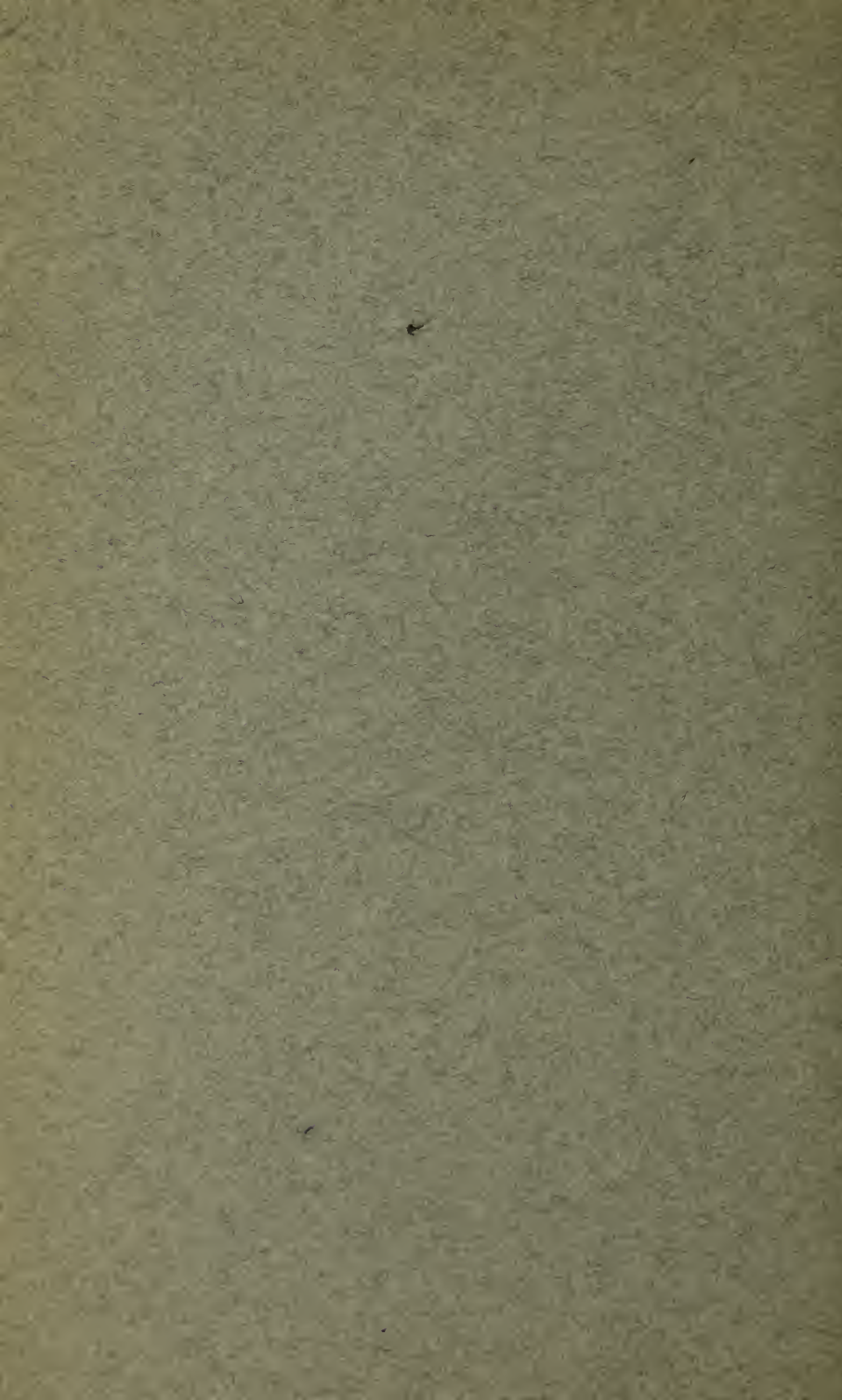
EDITED BY
HUGH J. MacKAY
University Publisher

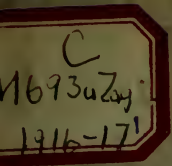
The General Series of The University of Missouri Bulletin consists of the announcements of the various colleges and schools which make up the University. These announcements will be sent free upon request to the Dean of the University Faculty, Columbia, Missouri.

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THE UNIVERSITY OF MISSOURI BULLETIN

VOLUME 17 NUMBER 17

GENERAL SERIES

1916, No. 6

ANNOUNCEMENT
OF THE
COLLEGE OF AGRICULTURE
1916-1917



UNIVERSITY OF MISSOURI
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JULY, 1916

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UNIVERSITY OF MISSOURI
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OPPORTUNITIES IN AGRICULTURE

There has never been a time when the call for men trained in scientific agriculture was so persistent as at the present time. Positions become available faster than men can be trained to fill them. The opportunities for good men adequately trained are increasing steadily in spite of the fact that an increasing number of graduates are annually sent out from agricultural colleges. The problem of transforming the agricultural industry into modern ways is a stupendous one. It requires the best thought, the greatest energy and the truest courage that the young men of the farm and the town can bring to this high calling. From every corner of the nation comes the persistent call for men who know agriculture "from the ground up." The field is as wide as the continent. The opportunities are many.

I. Farming: The farm is the fundamental thing in agriculture. The college of Agriculture of the University of Missouri believes that the man who desires to spend his life on a Missouri farm should have the same opportunity for training in his profession as has the doctor, the lawyer, the teacher, or the preacher. The standard of production must be raised. This is no more important, however, than the need of putting better business methods into farm practices and of completely making over the social fabric of the country so that the farm may be the best place in the world in which to live and enjoy life. A sensible training in agriculture makes this possible. This has been proven by a large number of graduates of this college. The owners of large estates are calling for competent farm managers. Here is a great field for trained horticulturists, dairymen, live stock and crop experts.

II. College Work: With the world-wide awakening to the need of better farm methods, has come a correspondingly rapid growth and development of agricultural colleges everywhere. This has opened many teaching positions to those who know agriculture and know how to teach it to college students. At the same time college teachers are being steadily drawn into other fields leaving vacancies to be filled by men who have more recently come up from the student ranks. One of the serious problems confronting our agricultural colleges is to find men equipped by training and natural inclination to fill the teaching positions which are always waiting. More than 4000 teachers are employed by the agricultural colleges of the United States.

III. Secondary School Work: High schools are introducing agriculture into their curricula as fast as teachers can be found to handle

the work. Some states have gone even farther and have established agricultural high schools. There are now several thousand schools below college rank which are giving instruction in agriculture. Agricultural college graduates will be demanded for all these positions where the highest type of efficiency is required.

IV. Agricultural Experiment Station Work: Of even greater importance than the teaching of scientific agriculture in colleges and secondary schools is the investigation of farm problems conducted by the various agricultural experiment stations. These problems are concerned with improvement of the standard farm crops and the breeding of new varieties of grains and forage plants; the control of plant and animal diseases; the chemical analysis of soils and fertilizers; the economical feeding of live stock for meat, milk, and labor; the control of injurious insect pests; the study of chemical and bacterial agencies in the soil; the working out of practical methods of orchard, farm, and garden management. The field for agricultural research is unlimited and the demand for such investigations increases with the years. More than 1200 persons are now engaged in agricultural experiment station work in the United States.

V. Live Stock Farming: The most profitable farms in the Middle West are live stock farms. Live stock farms which yield the largest returns are equipped with pure bred animals or their descendants. The business of breeding pure bred live stock is profitable. The demand for high class animals is increasing rapidly. The college teaches breed types, pedigrees, and expert handling of pure bred, registered live stock.

VI. Dairy Farming: There probably is no one branch of agriculture in which there has been greater growth in the last decade than that of dairy farming. Cows are constantly breaking the records for the production of milk and butter. Farmers with inferior cattle are demanding a better grade. The dairyman who knows how to breed and feed dairy cows, and knows how to care for and market their products has an unlimited opportunity.

VII. Fruit Growing: There are thousands of acres of unprofitable orchards in Missouri. This is because these orchards have not received proper care. There is a great demand for first class fruit and good opportunities in fruit growing for one who knows how. The man who is successful in fruit growing must be able to properly prune and spray his trees and know how to market his fruit. This knowledge is taught by the College of Agriculture.

VII. Creamery Operating: The rapid development of the dairy industry has caused many new creameries to be established. This, together with close competition has resulted in an increased demand for trained creamery operators. These men must not only know the technical methods that are followed in the manufacture of dairy products, but must understand the problems of distribution and marketing. Operators of small creameries who have agricultural college training have an excellent opportunity to aid in the development of

the dairy industry in their respective communities. This field is rapidly widening.

IX. Country Ministers' Work: It is now generally recognized that the country minister of the future will have a much closer relationship to the life of the community which he serves than he has had in the past. Ministers who will live in the country on a farm and take a leading part in the agricultural life of the community are the ones who will render the most efficient service. An agricultural college training will increase the efficiency of country ministers.

X. Industrial and Commercial Work: The railroad and transportation companies employ a large and increasing number of trained agricultural men. The fertilizer companies are looking to the agricultural colleges to supply them with men who understand the whole problem of increasing and maintaining soil fertility. They are building for permanency. Packers, grain dealers, milling concerns, manufacturers of farm machinery and motors, and real estate agencies are all employing men trained in agriculture. More college graduates are needed to supply this demand.

XI. Agricultural Journalism: The number of agricultural college graduates who have taken editorial positions with farm papers in the last five years has probably been greater than in the twenty years preceding. This field is limited but very desirable for those men who can qualify for the work. It is a growing field; more men rather than less will be wanted as the years go by.

XII. Extension Work: The big problem of the agricultural colleges and experiment stations today is the problem of how to carry the information in their possession to the farmers of the nation and apply it directly to the farm. The farmers themselves and all persons interested in the farm are demanding that the agricultural colleges increase their extension service. It will take a good sized army of men to meet the needs of the extension service during the next decade. These men must largely be college graduates. They must know the "how" of farming but they must also know the "why."

XIII. County Work: There are 114 counties in Missouri. Fifteen of these have already asked for and been provided with county agricultural agents. In Missouri these men are known as "county farm advisers." Other counties in the state are considering the employment of farm advisers. Other states are doing even more than Missouri along this line of effective extension work. If the development of the last two years may be taken as an indication of the future, the country will call for thousands of men for country work in the next ten years. Our agricultural colleges will be expected to supply this call.

XI. Service in the United States Department of Agriculture: The United States Department of Agriculture holds to the agricultural interests of the entire nation a relation similar to that which the University of Missouri College of Agriculture holds to the farming interests of Missouri. Altogether there are nearly 14,000 persons in the

service of the national department of Agriculture. Under its supervision comes the extensive meat inspection service, food inspection, and various other forms of government inspection; the weather service with branches and substations in every state; an extensive publication service; the administration of government agricultural and forest lands; an extension service covering every phase of agricultural activity whether concerned with the actual processes of farming, the farm home, social conditions on the farm, or the education of the farm boy and girl thru the medium of boys' and girls' clubs. A large portion of these positions are available only to graduates of agricultural colleges.

XV. Forestry Work: With the rapid diminishing of the timber supply, the nation as a whole and several of the states individually have awakened to the need of a systematic forestry service in order to replenish our forest areas and conserve the timber supply which still remains. This has called into service a large body of men trained along agricultural and forestry lines. The demand for men has led to the establishment of forestry schools and this in turn has created a demand for teachers of forestry. The lumbering industry is also drawing heavily upon college-trained foresters. Graduates of the University of Missouri College of Agriculture have special opportunities to enter this field on account of the nearness to the great lumbering region of the Southwest. The field is a growing one and the demand for trained men will continue to increase.

XVI. Landscape Gardening: In the care of country estates, city parks, driveways, and municipal improvement projects, men are needed who understand soils, fertilizers and the general principles of plant growing and development, and who combine with this fundamental knowledge, a thoro acquaintance with trees, shrubs, and flowering plants as well as a knowledge of the principles underlying landscape gardening. The field is limited one but offers a fine opportunity to men whose natural inclination tends in this direction.

THE UNIVERSITY OF MISSOURI COLLEGE OF AGRICULTURE

To the best trained men will come the best of the opportunities that have been enumerated. The best training can be given only where conditions are most favorable for effective teaching. The list of positions that have been held or are now being held by former students and graduates of the College of Agriculture indicates that the training given is of high quality. The training of men for positions is a minor function of the College of Agriculture. The training of farmers is most important. Graduates and former students of the College of Agriculture are among the successful farmers, dairymen, and breeders

of live stock in Missouri. Former students and graduates who are engaged in actual farming are rapidly becoming leaders in their communities. Their opportunities for service to the public are as numerous as are the opportunities of those who are occupying teaching and investigational positions.

The fact that these men are assuming positions of leadership is due to their having been properly trained. Many factors make this training possible at the University of Missouri College of Agriculture.

COMPLETE AND MODERN EQUIPMENT BUILDINGS

Agriculture Building: A two-story stone structure with a high basement and an auditorium seating 500 persons. More than 1,000 students may be accommodated at one time in classrooms and laboratories. The building includes offices of the dean and director, the State Board of Agriculture, including the state veterinarian, and dairy commissioner, the seed testing laboratory, the agricultural library, the departments of soils, farm crops, animal husbandry, farm management, rural economics and the extension service.

Horticulture Building: A stone building, two stories and a well-lighted basement with plant house and insectary, classrooms, laboratories, offices and preparation rooms for horticulture and entomology, which departments occupy it.

Dairy Building: A stone building, two stories with cheese-curing room in basement, rooms for creamery manufactures, cheese-making, farm dairy work, milk-testing laboratory, dairy bacteriology, offices, and classrooms.

Physics Building: The Physics Building, located on the East Campus, is a modern fireproof laboratory building. Lecture rooms and laboratories are well lighted and convenient. In addition to the department of physics the department of forestry is housed on the second floor of this building.

Schweitzer Hall: A new two-story stone building for agricultural chemistry, 170 feet long and 65 feet wide, with well-lighted basement. Half of the first floor is occupied by the offices and general chemical laboratories of the Agricultural Experiment Station. The basement contains a thoroughly equipped nutrition laboratory with demonstration room and large refrigerating rooms offering exceptional facilities for meat studies, including dressing and curing. The rest of the building is occupied mainly by student laboratories, lecture, and classrooms.

Biology Building: A two-story stone building with an exceptionally well-lighted and ventilated basement. The building is 220 feet by 60 feet. It is of fire-proof construction throughout and is considered to be the most modern laboratory building of the University. The departments of zoology and botany in which agricultural students receive much instruction are housed in this building. The laboratories are equipped with modern furniture and fixtures. The rooms are

all well-lighted and ventilated. There are two large lecture rooms in this building.

Live Stock Judging Pavilion: A new Live Stock Judging Pavilion is available for the instruction in live stock judging. This building is adjacent to barns on the University farm. It is of steel and wood construction, the frame work being of steel. The outside dimensions are 90x160 feet. The arena is 50x120. It has a seating capacity of 1500. The arena can be divided by dropping a large curtain thus making it possible to hold two large classes in stock judging at the same time. The building includes, in addition, offices, practicum rooms, locker rooms, and shower baths. During four months of the winter, it is also used as a gymnasium for the short course students.

Greenhouses: Six greenhouses are available for instruction and investigation. Three greenhouses, each 25x100 feet and two, each 16x50 feet, and one 25x50 embracing a total of 10,350 square feet under glass are used by the departments of horticulture, entomology, botany, soils, and farm crops. In addition to this there are 2000 square feet of hot bed and cold frame space under glass. This glass space affords facilities for instructional work, the maintenance of plant collections and investigations.

Veterinary Building: The veterinary department is housed in a new three-story building devoted exclusively to investigation and instruction in veterinary science. The building contains laboratories for anatomy, physiology, investigations in contagious and infectious diseases, the preparation of hog cholera serum, and operating rooms for clinics.

Poultry Building: A two-story stone building, including general office, incubator room equipped with various types of incubators, classrooms, and laboratory.

The poultry department has one fifteen-pen laying and breeding house, a feed house with killing pen in the basement, two farm poultry houses, one experimental breeding house, and ten portable colony houses. Several hundred fowls, representing the popular varieties, are kept for instructional and experimental purposes.

Barn Equipment: Special barns for horses, sheep, dairy cows, and hogs and feeding sheds for beef cattle are included in the equipment of the College of Agriculture.

LABORATORIES

Farm Machinery: A commodious stone building equipped with the latest types of tillage machines, self-binders, mowers, corn planters, hay loaders, manure spreaders, and gasoline engines.

Botany: Laboratories for physiological and structural botany, and culture rooms for physiological, mycological, and bacteriological work are in the new Biology Building. They are equipped with compound and dissecting microscopes, microtomes, steam and steam pressure sterilizers, incubators, balances, precision apparatus, and glassware. The herbarium amply illustrates the local flora.

Agricultural Chemistry: The completion of Schweitzer Hall, the new agricultural chemistry building, furnishes exceptional classroom and laboratory facilities for undergraduate instruction. The new building has two large student laboratories, a nitrogen laboratory, two balance rooms and an ether extraction room exclusively for student laboratory work. The total capacity of the laboratories is 260 students each semester. A number of research rooms are provided to facilitate the research work of more advanced students, giving special opportunities for investigations of problems in animal nutrition, silos, fertilizers, foods, feed stuffs, including a critical study of the provisional and official methods of the Association of Official Agricultural Chemists.

Entomology: The laboratories and insectary located in the Horticultural Building are supplied with microscopes, dissecting instruments, microtomes, breeding cages, aquaria, spraying machines, insecticides and re-agents. The museum contains collections of several thousands species of the more injurious and beneficial insects, arranged to illustrate their habits of work and life history.

Horticulture: The horticultural laboratories occupy about 6000 square feet of forcing-space under glass, a laboratory for the propagation of dormant plants, and storage room for cuttings, bulbs, stocks, and scions. The department also has laboratories for soil examinations and investigation of special horticultural problems regarding plant growth. The out-of-door collection on the horticultural grounds comprises about one thousand varieties of fruit, ornamental shrubs and trees for a study of planting, pruning, cultivating, and spraying.

In addition, eighty acres in the loess soil formation adjacent to Columbia is being developed in orchards, vineyards, etc., of a size to demonstrate the best fruit growing methods on a commercial scale. It also comprises a large collection of young seedling tree fruits which are the result of extensive breeding experiments now on in the department.

Farm Crops: The laboratories for instructional and investigational work include a large and well-equipped laboratory for the study and exhibition of the various types and most important varieties of farm crops, including material and equipment for the judging, and handling of grains, a room for storing and fumigating classroom material, a germinating room, a seed house, a research laboratory, and a seed testing laboratory maintained in cooperation with the U. S. Department of Agriculture.

The department also maintains an economic plant garden in which are grown the various types and principal varieties of all farm crops, together with the most prominent wild related forms. This affords an excellent opportunity for the study of such crops in the field and material for systematic study of botanical characters and relationships in the laboratory.

Dairy Husbandry: Facilities for instruction in dairy manufactures include creamery room equipped with power separators, churns, pasteurizers, sterilizers, and butter printers; a cheese room provided with

vats, cheese presses; a cheese curing room; cream separators, milk testing apparatus, and hand churns; refrigerating and cold storage plant; a laboratory for instruction and investigation in dairy bacteriology, and a laboratory for investigation in the composition of milk.

From 500 to 1000 pounds of butter are manufactured each week thruout the year.

Forestry: The forestry laboratory for the study of wood technology and dendrology is located in the Physics Building. The equipment includes a collection of the commercial woods of the country; cross and tangential sections of the trunks of trees of Missouri; an herbarium of tree species; exotic and native trees growing on the University campus; a forest nursery containing seed and transplant beds; and forty acres of timber near the University for experimental planting and demonstration.

A forest camp for the summer session of the course in forestry is established each summer on one of the University forests located in the Ozark region of southern Missouri. This camp is used for practical instruction in lumbering, mensuration, silviculture, and forest surveying.

Soils: The facilities for instructional and investigational work in soils include a large soils laboratory for the required course of instruction, balance rooms, storage rooms, and a special laboratory for advanced students. The equipment of these laboratories includes that necessary for work in soil physics and soil fertility. A plant house 30 by 65 feet is provided for special experiments by students and by those engaged in experiment station investigations. In addition, the various soil experiments in progress on the Agricultural Experiment Station field offer special opportunity for both instruction and investigation, while the results of the soil survey and of the various outlying soil experiment fields are used to good advantage in the instructional work.

Physics: The physics laboratories are located in the Physics Building. Rooms are equipped with various electric circuits, compressed air, gas, and hot and cold water. The equipment is modern and adequate. The lecture rooms are especially designed for experimental demonstrations in general physics with special apparatus for this work.

Zoology: Laboratories for the study of general zoology, embryology, cytology, and other zoological subjects are located in the Biology Building. They are equipped with compound and dissecting microscopes and other apparatus which is required in the different courses offered. The lecture room is equipped with a stereopticon lantern thru which microscopic slides can be shown greatly enlarged on the screen.

University Serum Farm: The hog-cholera-serum plant is located on a 90 acre farm about three miles north of the University farm, on the Wabash railroad. The plant has a capacity of 50,000,000 cubic centimeters of serum a year. When at full capacity 1500 hyper-immune hogs will be kept, and the College will be able to meet any emergency.

With this equipment the students in the College of Agriculture will be able to thoroly study the methods of controlling and eradicating hog cholera as will as the manufacture of serum.

LIVE STOCK EQUIPMENT

Dairy Herd: The department of dairy husbandry maintains a herd of 100 pure bred animals of the Jersey, Holstein, Ayrshire, and Milking Short Horn breeds. In this herd at present are the state champion milk and butter cows of each of the four breeds represented. At present there are five cows in this herd that have an average yearly milk record of more than 20,000 pounds and eight whose average yearly butter record is more than 750 pounds. One cow has produced 960 pounds of butter in one year. All these animals have been bred on the University farm. For the student who expects to follow dairy farming, this herd offers an excellent opportunity to study in detail a successful system of herd management.

Horses: The department of animal husbandry maintains a stud of twenty-five horses representing Percherons, American Saddle Horses, Standard-bred horses and Morgans. A percheron stallion, the sire of many prize winners in the leading live stock shows of America, and sons and daughters of some of the most famous sires of America are included. In addition there are available for instructional purposes fourteen head of high-class work horses and mules—the property of other departments—besides several stables of sale, breeding and show horses and mules in or near Columbia.

Swine: The swine herd is made up of breeding herds of Duroc Jerseys, Poland Chinas, Berkshires and Chester Whites. About twenty-five mature sows are kept. These, with their offspring, make a herd of 125 to 175 hogs and furnish material for instructional purposes in pork production and judging. From six to twenty head of fat barrows are fitted for exhibition purposes each year.

Beef Cattle: The department of animal husbandry maintains a herd of about sixty head of pure bred beef cattle, representing the Shorthorn, Aberdeen-Angus, Hereford, and Galloway breeds. The breeding herd is maintained in a practical and productive manner which forms a basis for a study of the management of beef cattle and supplies specimens for judging work. A herd of show steers exhibited each year at some of the leading live stock shows in the United States is also available for judging practice. Typical specimens of the various market classes and grades of cattle are secured from a market center each winter for demonstration purposes. The Agricultural Experiment Station beef cattle, numbering from thirty to fifty head, are also available for study.

Sheep: A breeding flock of about fifty pure-bred sheep representing the Shopshire, Hampshire, Dorset Horn, South Down, Cotswold, and Delaine Merino breeds is maintained for instructional work. A small grade flock is also kept to illustrate the market classes and grades of sheep and to emphasize the value of using pure bred rams.

The students are taught to shear the sheep, prepare them for shows and to manage the flock from the farmer's standpoint.

LAND EQUIPMENT

Altogether there are 700 acres on the University farm. A large part of this is hilly bluegrass pasture. Forty acres of the land are used for experiments in forestry. There is enough cultivated land to satisfy the requirements of instruction and students are given an opportunity to study in the field the effects of proper and improper soil management and crop rotation as well as to observe all the facts of plant growth and plant development which are necessary to a proper understanding of farm crop rotation. The horticultural grounds are adequate to teach the principles of orchard and garden management in every detail.

Turner Station Fruit Farm: The University has bought eighty acres of land on the M. K. & T. railroad near Turner Station, eight miles south of Columbia. This farm lies on the fertile loess soil common along the Missouri River, said to be the best fruit soil known. More than thirty acres are now planted to the leading varieties of apples, peaches, pears, plums, cherries and small fruits adapted to Missouri. Here students study the adaption and characteristics of the different fruits and observe the effect of different cultural methods used.

University Forests: As a result of the First Morrill Act, passed by Congress in 1862, the University acquired a large amount of public land. After disposing of such portions as could be sold for farming there remains of this land about 50,000 acres. These lands are administered by the department of forestry. They are divided into six University Forests, the Butler, Gasconade, Little River, Taney, Ripley and Osage and are in charge of forest wardens. Every summer the students in the department of forestry are required to spend eight weeks in an instruction camp on these lands. Investigations are being made to determine the growth of native trees and the best methods of handling Missouri forest lands.

Other Lands: A 120-acre farm lying four miles south of Columbia has been rented for the department of animal husbandry. On this farm is maintained stock which is used for instructional work during the school years and for which there is not room on the University farm. Some experiments are carried on here.

University Serum Farm:

See page —.

THE TEACHING STAFF

Forty-four teachers give their time to the instruction of agricultural students in the strictly agricultural subjects. These men devote a portion of their time to making experiments and to extension work among the farmers of the state. This combination of duties places them in a position to teach most effectively because they are in close contact with the farmers while at the same time they are helping solve the farm problems. Twenty persons devote their entire

time to extension teaching and demonstration in agriculture and home economics out in the state. In addition to this corps of teachers, there are twenty-seven teachers who give instruction to agricultural students in the fundamental sciences such as zoology, botany, chemistry, and physics, upon which sciences the practice of technical agriculture is founded.

THE COURSE OF STUDY

The fundamental idea in planning the course of study at the College of Agriculture is to train men to be farmers, teachers and investigators in the broadest sense of the term. The course is founded on the belief that to be a successful farmer, a successful teacher of agriculture, a successful investigator of farm problems, or a practical writer on farm subjects, a man must first of all understand farming. He must be taught to see the application of every scientific fact to the actual practice of farming; he must be taught to realize that the whole scheme of agricultural education centers about the soil and its products. This is the idea upon which the course in agriculture at Missouri is built.

Undergraduate Instruction: The undergraduate courses lead to the degree of Bachelor of Science in Agriculture. The College of Agriculture of the University of Missouri is fortunate in being organized as a division of a University comprising a College of Arts and Science, a School of Education, a School of Engineering, a School of Mines and Metallurgy, a School of Law, a School of Journalism, a School of Medicine, and a School of Commerce. Coordinating with the work of the University, altho independent from it, is the Missouri Bible College. So the student in agriculture, if he desires, may broaden his course by electing subjects from any of these other divisions of the University. His associations while at the college bring him in contact with men in other divisions whose purposes and views of life are widely divergent. Because of these associations a graduate of the College of Agriculture leaves the University a broader man, with a better understanding of the world in which he is to live and of which he is to form an important part. Because of his breadth of view, and because of his studies outside the technical field of agriculture, he is better fitted for a higher citizenship and for a higher place in community life than is possible where opportunities are more restricted. Scholarships and prizes are available to students who meet certain requirements. For particulars in regard to these undergraduate scholarships and prizes, see pages 77 to 87 of the University of Missouri catalog for 1915-16.

Graduate Instruction: Graduate instruction in agriculture is offered in the graduate school of the University of Missouri. The student cannot enter the Graduate School until he has completed the undergraduate course of study at the College of Agriculture of the University of Missouri or any institution of equal standing. The graduate course leads to the degrees of Master of Arts and Doctor of Philosophy. The College of Agriculture believes that those who

lead in the development of Agricultural life and thought must have the best training available. For those who intend to teach in a university or an agricultural school or who expect to take up investigational work in an experiment station, a graduate course of study is considered highly important. This is because of the better preparation for leadership which the graduate course gives. The faculty of the College of Agriculture offers in the graduate school of the University complete and adequate facilities for graduate instruction. A large number of graduate students of agriculture are enrolled in the Graduate School. These men are being specially trained to take the more responsible positions of leadership in agricultural thought and work.

To encourage graduate study the University offers scholarships paying \$200 a year and fellowships paying \$400 as described on page 78 of the University of Missouri catalog. Graduates of colleges are eligible for these agricultural scholarships and fellowships. Further information is reference to the scholarships and fellowships may be had by writing to the Dean of the Graduate Faculty, University of Missouri, Columbia, Missouri.

STUDENT ORGANIZATIONS

The College of Agriculture recognizes the fact that a part of each student's training should be the development of his powers of administration and self-government. It is a part of the training of good citizenship. In pursuance of this idea, student organizations have been encouraged and every student is urged to affiliate himself with some organization or some movement in which students exercise their capacity to successfully conduct important and complicated enterprises without the directing influence of the officers of the college. Many successful organizations are conducted by agricultural students.

The Agricultural Club: This union of all agricultural students in the University has been a power for good in promoting college spirit and loyalty to the College of Agriculture. The organization has worked unselfishly for the best good of all and is worthy of the active support of every agricultural student.

The College Farmer: The agricultural college paper is published monthly. Its excellent management deserves great credit for the uniformly high character of the publication. The purpose of the paper is to present reliable articles on agricultural subjects and to bring to the attention of the farmers and others the work of the college and station. The editors and managers are elected annually by the Agricultural Club.

The County Fair: Once a year the agricultural students give a county fair. This event calls for the display of considerable ability in organization and is useful in stimulating the ingenuity of individual students. A live stock, agricultural, and horticultural display divides attention with more recreative features provided by the students.

The Commencement Horse Show: During Commencement Week each year the students in the College of Agriculture hold a horse

show. The best show horses in Central Missouri are exhibited. Not only is this an excellent opportunity for the students to examine the finest horses in the state and to know the breeders and owners, but in addition the responsibility for the successful management of the show gives them valuable training. The show is held on the athletic grounds of the University. An advisory council made up largely of Columbia business men assist in the management of this show, which is self-supporting.

The Farmers' Forum: This society was organized among agricultural students to promote and improve the ability of the members to speak clearly and logically before an audience of practical farmers and business men. The membership is limited to twenty men. The work consists of prepared talks and of extemporaneous short talks. Critics are appointed each meeting from the members or from the faculty whose work it is to criticise the exercises from the standpoint of a hearer in a large audience. Meetings are held once in two weeks.

Barn Warming: A real old-fashioned barn warming is held by the students in the College of Agriculture each fall. This barn warming, formerly held in the loft of the horse barn but now in Rothwell Gymnasium because of lack of space in the former place, is in the nature of an autumn festival.

Horticultural Club: This organization is composed of graduates and undergraduates who are specializing in horticulture. Its meetings are held twice a month and are given over to the reading of scientific papers and informal discussions dealing with horticultural problems.

University Grange No. 2094: The interest and responsibilities of the agricultural student do not end with his immediate surroundings in college. He justly feels that he owes a duty to the farming class to which he belongs. In the Grange, faculty and students meet and discuss the broader phases of agriculture which are of interest to them as farmers rather than students.

Students Dairy Association: Graduate and undergraduate students in dairy husbandry have organized this association. It meets bi-monthly to discuss scientific and practical problems of dairying.

Forestry Club: Students and teachers in the forestry department meet twice a month for the presentation of papers and informal discussions of current events in forestry.

Honorary Societies: Students in the College of Agriculture have organized several honorary societies. Gamma Sigma Delta is a graduate honorary society including in its membership faculty, graduate students, and seniors. Membership in this organization is limited to men of high scholarship, capacity for original research, and leadership in modern agriculture.

Alpha Zeta is an honorary society for under-graduate students. Only upperclassmen of highest scholarship are eligible to membership.

Sigma Kappa Zeta is a student honorary horticultural society. Only upper-classmen of high scholarship and who are specializing in horticulture are eligible to membership.

PRACTICAL EXCURSIONS

In order to bring students into closest possible touch with the field of practical agriculture, different departments annually arrange for a number of excursions, mainly to the farms of successful farmers and breeders. The practical excursion, therefore, becomes an important factor in helping the college to impress upon the student the close connection between the work of the classroom and laboratory and the practical field of agriculture.

MEDICAL ATTENTION FOR STUDENTS

Regularly enrolled students in the University who carry not less than 12 hours of University work have free medical attention and hospital care, except those in the employ of the University who hold rank higher than that of undergraduate student assistant. In the dispensary at Parker Memorial Hospital students may consult with and have treatment by the members of the staff of the department of clinical medicine and surgery. The attention of the same staff physicians is available to students who have to be admitted to the hospital. When surgical operations are required a moderate charge is made by the hospital for operation. No fees are paid to the staff physicians in any case. The amount of the charge in each surgical case is determined by the superintendent of the hospital in accordance with certain general rules laid down by the Board of Curators. Under extraordinary conditions a small fee may be charged by the hospital for medical services.

A general physical examination is required of all new students. It is carried on in the hospital at specially appointed times by the members of the department of clinical medicine and surgery. Vaccination is required of all students.

For additional information regarding the care of students' health in the University of Missouri consult the annual catalog, page 75.

CULTURAL ADVANTAGES

Each year the University brings to Columbia talented lecturers, musicians and artists. A series of musical concerts under the auspices of Phi Mu Alpha, a musical society, has become an established part of the season's attractions. Several good plays are presented each year in the University Auditorium. The University assemblies held at frequent intervals are addressed by noted men from all parts of the United States and occasionally by men from abroad. Farmers' Week and Journalism Week draw to the University men of note in the fields of agriculture and journalism. The University art exhibits display some of the finest collections of paintings and art work that can be had outside of the principal art centers.

Students who are especially interested in a musical training will find ample facilities for such training in the University band, glee club, orchestra, or chorus. The city of Columbia, outside of the Uni-

versity has some of the best teachers of vocal and instrumental music that can be found anywhere.

RELIGIOUS LIFE AT THE UNIVERSITY

On the average about 72 per cent of all the students registered in the University of Missouri are church members and about 18 per cent more have church preferences. There are more ministerial students in the University of Missouri in proportion to its enrollment than in any other state university. Reverend Hugh Black recently stated, after delivering a series of religious addresses at the University of Missouri, "I have found a greater appreciation of religious matters and interest in them in the University of Missouri than in the denominational institutions that I have visited." The members of the University faculty are active in the church life of the community. The leading religious denominations in Columbia have efficiently organized the student work of their churches. Several of the churches employ assistant student pastors.

Young Men's Christian Association: The students of the University have always taken an active interest in the Young Men's Christian Association of the University. This Association owns a \$60,000 stone building devoted to the religious and social life of the students of the University. In the building are rooms for the accommodation of eighty students; in addition there are quarters for the secretary and other officers of the association; an auditorium for meetings; and various committee rooms used by the student organizations. New students are advised to confer with the secretary of the Young Men's Christian Association in reference to finding suitable places to board and room. Students desiring employment should also consult the secretary in charge of this work in the Y. M. C. A. Building. When you arrive in Columbia report first to the Y. M. C. A. Building where you will find help in securing a satisfactory location for board and room.

COLUMBIA A DESIRABLE STUDENT HOME

Columbia is an ideal college town. The residents realize that the state of Missouri has entrusted them with the sacred responsibility of providing a clean, wholesome environment for her sons and daughters during the four or more years of their college life. There are no saloons in Columbia or Boone county and the regulations in regard to the liquor traffic are rigidly enforced. The city board of health is diligent in enforcing the health ordinances. The fire department looks to the proper equipment of all rooming and boarding houses so that the danger from fire is practically eliminated. The water supply is the best that deep-well service can afford.

Columbia is a city of broad, paved streets, of beautiful shade trees, and home-like dwellings. The houses in the University section are built with an eye to beauty, comfort, and utility. In these houses, the homes of citizens, students in the College of Agriculture make their homes. There are two dormitories for men but these have a total

capacity of only 140 students. The University Y. M. C. A. Building accommodates eighty, and the Missouri Bible College building forty in addition.

AGRICULTURE AND HOME ECONOMICS FOR WOMEN

Attention is called to the special curriculum in agriculture and home economics (see p. —) which has been arranged for the benefit of young women in the country who desire to have a knowledge of modern methods of agriculture. This course is correlated with the work in home economics and it is possible to secure a very complete training in the latter subject while pursuing courses in agriculture. The agricultural subjects offered to women are largely in the departments of soils, farm crops, horticulture, botany, and poultry husbandry.

REQUIREMENTS FOR ADMISSION

Candidates for admission to the College of Agriculture should write early to the Dean of the University Faculty, University of Missouri, Columbia, Missouri, for the general catalog of the University, blanks for reporting high school credits and detailed information concerning admission to the University.

High school subjects which are required for admission are designated in terms of "units", a unit being the equivalent of a subject pursued five periods a week for at least thirty-six weeks, four units constituting a year's work.

Fifteen units, the equivalent of a four years' high school course, are required for admission as a regular student to the College of Agriculture. Three units in English and one unit in mathematics are fixed requirements. The remaining eleven units may be selected from the list given on page 42 of the University catalog. In preparation for admission to the College of Agriculture, students are strongly urged to take at least one laboratory science.

Entrance Conditions: Applicants for admission who are deficient in a small portion of the requirements may be admitted conditionally at the discretion of the dean of the University faculty.

Students from accredited schools will not be admitted, subject to a condition, unless they are graduates of such schools.

Entrance conditions to the College of Agriculture must be removed within one year from the date of entrance. Students should consult with the dean of the University faculty regarding the removal of such conditions.

SUBJECTS ACCEPTED FOR ADMISSION

The subjects in which entrance units may be offered, the minimum and the maximum number of units that may be offered in each subject, and the number of units or hours required for each college or school of the University, are to be found on page 42 of the University catalog.

Admission by Examination: Students who have had the equivalent of a high school training either by private study or by study in an unaccredited school may gain admission to the College of Agriculture by writing and passing the entrance examinations which are given at the opening of each semester. Permission to take the entrance examinations must be secured in advance from the dean of the University faculty as described on page 56 of the University catalog.

Special Students: Mature men and women may be admitted to the College of Agriculture for special study in such subjects as they are prepared to pursue with profit to themselves. Such students must be at least 21 years old. Special students are not candidates for degrees and cannot become such until they have fulfilled all requirements for admission. An application for admission as a special student should be made to the dean of the University faculty as described on page 62 of the University catalog. If the dean approves the application he will issue the candidate an entrance card as a special student.

Admission from Junior Colleges: All students who have graduated from accredited junior colleges in this or other states may enter the junior year of the College of Agriculture. If the student has taken work in science in the junior college he can generally complete the technical requirements in the College of Agriculture in approximately two years. Many Missouri students are embracing this opportunity to complete their education and secure training in agriculture.

Admission from Standard Colleges: The curriculum of the College of Agriculture is so arranged that students who have completed their sophomore year in a standard college may secure credit for all the work done and these credits will be accepted for a part of the requirements for the degree of Bachelor of Science in Agriculture. If such students have had considerable work in science in their college courses, it is possible to complete the requirements for Bachelor of Science in Agriculture in two years. An increasingly large number of college students are taking advantage of this opportunity.

HOW TO ENTER THE COLLEGE OF AGRICULTURE

First; write to the Dean of the University Faculty, University of Missouri, Columbia, Missouri, for a blank certificate for admission and a University of Missouri catalog.

Second, when this blank is received take it to the principal of the high school (or other school) in which your credits were received, tell him that you wish to enter the College of Agriculture of the University of Missouri and ask him to fill out the blank.

Third, when the blank is properly filled out mail it to the Dean of the University Faculty, University of Missouri, Columbia, Missouri.

You will then be notified that your credits are approved or that you will be required to take entrance examinations in certain subjects.

Fourth, come to Columbia on September 18, 1916, (or February 1, 1917, if you wish to start with the opening of the second semester). Plan to be in Columbia before the second registration day at the latest.

Fifth, go to Academic Hall on the West Campus where you will receive instructions in regard to registration.

Sixth, for further information in regard to entrance write to the Dean of the University Faculty, University of Missouri, Columbia, Missouri.

FEES AND DEPOSITS

Tuition is free in all divisions of the University to students who are residents of the State of Missouri. Non-residents of the state are required to pay a tuition fee of \$10 a semester, except in the Graduate School. A library, hospital, and incidental fee of \$12 a semester is required of all students, except those in the short winter courses in agriculture, and those especially exempt by law or by rules of the Curators of the University of Missouri. A fee of \$2 is charged for each diploma and a fee of \$1 is charged for each certificate given.

In laboratory courses fees and deposits are required to pay for material used, depreciation of equipment and damage to University property. In some laboratory courses only a fee is required, in some both fee and a deposit, and in others only a deposit. For full statement of laboratory fees and deposits see pages 66 to 71 of the University of Missouri catalog.

In the military department, where all men students must take instruction during their freshman or sophomore year, a deposit of \$10 for each dress uniform and of \$5 for each service uniform is required. For details see page 387 of the annual catalog.

LIVING EXPENSES

The necessary expenses of living for one year are estimated in the table below:

Room rent	\$ 35 to \$ 54
Board for 36 weeks.....	115 to 144
Books, stationery, and supplies	25 to 40
Laundry	15 to 30
Library, hospital, and incidental fees	24 to 24
Incidentals	25 to

The above estimate does not include laboratory fees and deposits. The left-hand column shows what is considered the minimum expense. The estimate of the room rent in this column is based on the highest charge for room rent in the University dormitories and the estimate for board is based on the average price of a meal at The Commons. The cost of books, laundry, and incidentals is considered the minimum on which a student can comfortably go thru the freshman year.

The estimate of board and room in the right-hand column is based on average cost of board and room at private residences in Columbia. The estimate of books, laundry and incidentals is considered liberal.

It might be possible for a student to live comfortably on less than the smallest sum indicated above. It is also entirely possible for a student to exceed the expenditures listed in either column. The incidental item in a student's expense account is probably subject to more variation than any other item.

PAYING ONE'S WAY THRU THE COLLEGE OF AGRICULTURE

It is variously estimated that from 20 to 30 per cent of the students in the College of Agriculture are paying all or a considerable portion of their expenses by working while attending the University. A limited number of students work for the various departments of the college in caring for the live stock, assisting in the dairy department, working in the various divisions of the agricultural experiment station, and giving assistance in pruning, spraying, and planting on the horticultural grounds.

Students also find employment in Columbia caring for furnaces, waiting on tables, clerking, and in numerous other ways. Prospective students who must earn part of their expenses should write to the Secretary, University Y. M. C. A., Columbia, Missouri, for the circular entitled "Self Help", which contains valuable and reliable information on this subject.

DEGREES

The degree of Bachelor of Science in Agriculture is conferred upon all students completing the four-year curriculum in agriculture for men and the four-year curriculum in agriculture and home economics for women.

The degree of Master of Forestry is conferred upon all students completing the five-year curriculum in forestry, and the degree of Bachelor of Science in Forestry may also be conferred under conditions mentioned below.

The degree of Master of Arts is conferred upon students by the Graduate School for one year's graduate study in any of the departments of agriculture. (See announcement of the Graduate School.)

The degree of Doctor of Philosophy is conferred upon students in the Graduate School who have devoted not less than three years of advanced study to some special branch and have attained exceptional proficiency in original research.

CURRICULA IN THE COLLEGE OF AGRICULTURE

A. Four-year curriculum in agriculture for men, leading to the degree of Bachelor of Science in Agriculture (B. S. in Agr.)

B. Four-year curriculum in agriculture and home economics for women, leading to the degree of Bachelor of Science in Agriculture (B. S. in Agr.)

C. Five-year curriculum in forestry, leading to the degree of Master of Forestry (M. F.) Upon the completion of the first four years of this curriculum the degree of Bachelor of Science in Forestry (B. S. in F.) is conferred.

D. Two-year Winter Course in Agriculture.

E. Short Course for Women.

F. Course in Dairy Manufactures.

G. A Farmers' Short Course in Agriculture is offered each year in January at Columbia. In 1916, farmers to the number of 2011 registered in this course.

A. FOUR-YEAR CURRICULUM IN AGRICULTURE FOR MEN

Required Work: The prescribed courses and the order in which they are required is indicated in the four-year curriculum in agriculture for men, page —. All candidates for the degree of Bachelor of Science in Agriculture must satisfactorily complete 124 hours, of which two hours must be in military science. All candidates for the degree must have completed the hours (81) prescribed in the curriculum, page —, and in addition 26 hours elected from technical agricultural courses and 17 hours from any subjects offered in the University of Missouri or other standard college. Technical agricultural subjects are all courses now being offered in the departments of animal husbandry, dairy husbandry, farm crops, farm management, horticulture, poultry husbandry, soils, and veterinary science; courses 1a and b, 109a and 110b in the department of entomology, agricultural chemistry 102a, and all courses in rural economics now offered and numbered 100 or above.

Candidates for graduation who matriculate without having adequate farm experience are required to devote the equivalent of two summer vacations to practical work on the farm. Beginning with those who enter the College of Agriculture in September, 1916, and thereafter all students will be required to have one year of practical farm experience before the degree will be conferred. All students are advised to secure this experience before entering. The College cannot undertake to provide the means for satisfying this requirement.

Advisers:

It is recommended that during the first semester of the junior year each student in consultation with the dean choose some member

of the faculty as his adviser for the purpose of consultation in regard to the proper selection and grouping of elective courses.

Regulations, Grades, and Credits:

The general regulations governing grades and credits to be found on page 93 of the general catalog apply to all courses in this college. Students of exceptional ability may shorten the period of residence by superior scholarship. Students who in any semester fall behind in more than 42 per cent of the hours in which they are registered at the end of that semester, or who fall more than 10 hours behind the total number of hours for which they have been registered up to that time, exclusive of the first semester of the freshman year, will be dropped from the college.

All students who have been dropped under this rule are permitted to return after one semester.

OUTLINE OF COURSES

FRESHMEN*

Group I

<i>First Semester</i>		<i>Second Semester</i>	
Animal husbandry, 1a.....	3 hrs.	English, 1.....	3 hrs.
Botany, 1a.....	5 hrs.	Horticulture, 1b.....	3 hrs.
Chemistry, 4a or 6a.....	5 hrs.	Physics, 1b.....	5 hrs.
English, 1.....	3 hrs.	Zoology, 1b.....	5 hrs.
Military science and tactics.....	1 hr.	Military science and tactics.....	1 hr.
<hr/>		<hr/>	
17 hrs.		17 hrs.	

Group II

<i>First Semester</i>		<i>Second Semester</i>	
English, 1.....	3 hrs.	Animal husbandry, 1b.....	3 hrs.
Horticulture, 1a.....	3 hrs.	Botany, 1b.....	5 hrs.
Physics, 1a.....	5 hrs.	Chemistry, 4b or 6b.....	5 hrs.
Zoology, 1a.....	5 hrs.	English, 1.....	3 hrs.
Military science and tactics.....	1 hr.	Military science and tactics.....	1 hr.
<hr/>		<hr/>	
17 hrs.		17 hrs.	

SOPHOMORES

Group I

<i>First Semester</i>		<i>Second Semester</i>	
Botany, 3a.....	3 hrs.	Dairy husbandry, 1b..	3 hrs.
Chemistry, 25a.....	5 hrs.	Farm crops, 1b.....	5 hrs.
Entomology, 2a.....	3 hrs.	Geology, 2b.....	3 hrs.
Elective.....	5 hrs.	Organic chemistry, 15b....	3 hrs.
<hr/>		Elective.....	2 hrs.
16 hrs.		<hr/>	
		16 hrs.	

*During the freshman, sophomore, and junior years students are divided into two groups. The subjects taken by each group are the same but are taken in different order.

Group II

<i>First Semester</i>		<i>Second Semester</i>	
Dairy husbandry, 1a.....	3 hrs.	Botany, 3b.....	3 hrs.
Farm crops, 1a.....	5 hrs.	Chemistry, 25b.....	5 hrs.
Geology, 2a.....	3 hrs.	Entomology, 2b.....	3 hrs.
Organic chemistry, 15a....	3 hrs.	Elective.....	5 hrs.
Elective.....	2 hrs.		
<hr/>		<hr/>	
16 hrs.		16 hrs.	

JUNIORS

Group I

<i>First Semester</i>		<i>Second Semester</i>	
Animal husbandry, 100a....	3 hrs.	Animal husbandry, 101b,	
Agricultural chemistry, 1a..	3 hrs.	or farm crops, 104b, or	
Botany, 100a, or veterinary		horticulture, 114b.....	3 hrs.
science, 1a.....	5 hrs.	Social science.....	5 hrs.
Soils, 1a.....	5 hrs.	Elective.....	7 hrs.
<hr/>		<hr/>	
16 hrs.		15 hrs.	

Group II

<i>First Semester</i>		<i>Second Semester</i>	
Animal husbandry, 100a....	3 hrs.	Animal husbandry, 101b,	
Botany, 100a, or veterinary		or farm crops, 104b, or	
science, 1a.....	5 hrs.	horticulture, 114b.....	3 hrs.
Social science.....	5 hrs.	Agricultural chemistry, 1b..	3 hrs.
Elective.....	3 hrs.	Soils, 1b.....	5 hrs.
<hr/>		Elective.....	4 hrs.
<hr/>		<hr/>	
16 hrs.		15 hrs.	

SENIORS

<i>First Semester</i>	<i>Second Semester</i>
Elective.	Elective.

B. FOUR-YEAR CURRICULUM IN AGRICULTURE FOR WOMEN

The curriculum in agriculture for women emphasizes those phases of agricultural instruction of special significance to women. The agricultural requirements are chiefly in plant subjects, in dairy husbandry, in poultry farming, and in home economics. The degree of Bachelor of Science in Agriculture (B. S. in Agr.) is conferred upon the completion of the required work.

Required Work: The student must complete a total of 120 hours in addition to the requirements in physical training. Of the total number of hours 56 hours are fixed requirements as shown in the printed curriculum, 36 hours are major electives to be selected as indicated below, and 28 hours are free electives.

FRESHMAN

<i>First Semester</i>		<i>Second Semester</i>	
Chemistry, 4a or 6a.....	5 hrs.	Chemistry, 25b.....	5 hrs.
English.....	5 hrs.	Home economics, 1b.....	5 hrs.
Horticulture, 1a and 2a....	5 hrs.	Botany, 1b.....	5 hrs.
Physical training.....	1 hr.	Physical training.....	1 hr.

SOPHOMORE

<i>First Semester</i>		<i>Second Semester</i>	
Chemistry, 5a.....	3 hrs.	Botany, 3b.....	3 hrs.
Horticulture, 102.....	2 hrs.	Dairying, 1b.....	3 hrs.
English.....	2 hrs.	Horticulture, 102.....	2 hrs.
Physiology, 1a.....	5 hrs.	English.....	2 hrs.
Home economics, 10a.....	2 hrs.	Home economics, 11b.....	2 hrs.
Elective	1 hr.	Elective	3 hrs.

JUNIOR

<i>First Semester</i>		<i>Second Semester</i>	
Elective.....	15 hr.	Elective.....	15 hr.

SENIOR

<i>First Semester</i>		<i>Second Semester</i>	
Elective.....	15 hrs.	Elective.....	15 hrs.

In choosing electives the student will be required to select a major of 36 hours in any one of the groups designated below.

1. Plant group, including botany and horticulture.
2. Dairy husbandry group, including dairy husbandry and animal husbandry.

3. Home economics group, including home economics and design.

The remaining 26 hours may be selected from other courses in the College of Agriculture, the College of Arts and Science, or the School of Education.

C. FIVE-YEAR CURRICULUM IN FORESTRY

The five-year curriculum in forestry educates and trains men for the profession of forestry. Graduates are fitted to devise and execute plans for the utilization and management of woodlands and forests, both private and public.

Nature of the Curriculum: The first three years of work are devoted primarily to the sciences underlying the profession, altho an early introduction is given to the principles and purposes of forestry. Fundamental principles are first studied in the University, then the application of these principles is carried out on the University forests in the Ozark region. There are six of these forests with an aggregate area of 50,000 acres. Their entire administration is in the hands of a member of the faculty in the department of forestry. During the Summer Session of the University a forest camp is conducted in the Ozarks for eight weeks.

During the last eight weeks of the spring semester of the fifth year of the course students will make detailed plans for the management and logging of some allotted portion of these forests.

Since most of the subjects outlined in the first two years of the curriculum are pursued in the College of Arts and Science, students who have completed 60 credit hours in that college may be admitted in forestry at the beginning of the third year. It is possible for graduates of collegiate institutions to complete the technical forestry courses and receive the Master's degree in two years. The summer courses will be required of these men after one year's work at Columbia. Their undergraduate work should include the following courses:

Two years of college botany and at least one college course in chemistry, geology, economics, American government, physics, zoology, mathematics thru trigonometry, and a reading knowledge of German.

Degrees: The degree of Master of Forestry is conferred on those students who have fulfilled all the requirements of the five-year curriculum. The degree of Bachelor of Science in Forestry is conferred on those students who have fulfilled all the requirements in the curriculum in forestry to the end of the fourth year.

OUTLINE OF COURSES

FIRST YEAR

<i>First Semester</i>		<i>Second Semester</i>	
English, 1.....	3 hrs.	English, 1b.....	3 hrs.
German, 1a.....	5 hrs.	German, 2b.....	5 hrs.
Chemistry, 6a.....	5 hrs.	Chemistry, 15b.....	3 hrs.
Forestry, 10a, dendrology..	3 hrs.	Botany, 1b.....	5 hrs.
Military science and tactics.....	1 hr.	Military science and tactics.....	1 hr.

SECOND YEAR

<i>First Semester</i>		<i>Second Semester</i>	
Mathematics, 2a.....	5 hrs.	Mathematics, 4b.....	5 hrs.
Physics, 1a.....	5 hrs.	Geology, 1b.....	5 hrs.
Forestry, 11, forest seeds and seedlings.....	1 hr.	Forestry, 11, forest seeds and seedlings.....	1 hr.
Botany, 100a.....	5 hrs.	Botany, 101b.....	5 hrs.

THIRD YEAR

<i>First Semester</i>		<i>Second Semester</i>	
Forestry, 120, silviculture..	5 hrs.	Forestry, 120, silviculture..	5 hrs.
Zoology, 1a.....	5 hrs.	Entomology, 105b.....	2 hrs.
Civil engineering, 102a....	3 hrs.	Mechanical drawing, 7b...	2 hrs.
Geography, 110a.....	3 hrs.	Forestry, 121b, forest mensuration.....	3 hrs.
		Forestry, 122b, forest engineering.....	5 hrs.

SUMMER CAMP

Summer Session

Forestry, 124s, silvicultural praxis.....	2 hrs.
Forestry, 125s, mensuration.	3 hrs.
Forestry, 126s, lumbering...	3 hrs.

FOURTH YEAR

First Semester

Botany, 102a.....	3 hrs.
Economics, 1a.....	5 hrs.
Forestry, 127a, forest pro- ducts.....	2 hrs.
Forestry, 128a, lumber trade.....	1 hr.
Forestry, 129a, forest economics.....	3 hrs.
Forestry, 130a, seminary in silviculture.....	2 hrs.

Second Semester

Botany, 108b, tree diseases.	3 hrs.
American government, 1b..	5 hrs.
Topographic surveying, 107b.....	3 hrs.
Forestry, 123b, wood technology.....	4 hrs.
Forestry, 133b, seeding and planting.....	2 hrs.

FIFTH YEAR

First Semester

Forestry, 200, policy and law.....	3 hrs.
Forestry, 201, forest or- ganization.....	3 hrs.
Forestry, 202a, forest valu- ation.....	3 hrs.
Forestry, 206a, forest his- tory.....	1 hr.
Forestry, 207a, forest ad- ministration.....	1 hr.
Elective:	
Forestry, 203a, lumber- ing.....	2 hrs.
Forestry, 205a, care of trees.....	3 hrs.

Second Semester

Forestry, 200, policy and law.....	3 hrs.
Forestry, 201, forest or- ganization.....	3 hrs.
Forestry, 208b, forest plans.....	8 hrs.
Animal husbandry, 104b...	2 hrs.

STATEMENT OF COURSES

Courses for underclassmen are indicated by numbers below 100; courses for upperclassmen and graduates, numbers 100-199; courses primarily for graduates, numbers 200-299. Those designated by a number with the letter *a* attached, thus: 100a, 200a, are given the first semester only. Those designated by the letter *b*, thus: 100b, 200b, are given the second semester only. Those designated by the letter *s*, thus: 5s, are given during the Summer Session. Those designated merely by a number are continuous courses and are given both semesters. Arabic numerals in parenthesis indicate the number of hours' credit a semester.

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Courses listed below are in the four-year curriculum in agriculture for men, four-year curriculum in agriculture for women, and the five-year curriculum in forestry. For complete description of these courses see the annual catalog.

AGRICULTURAL CHEMISTRY

1a and b. Agricultural Chemistry. (3) Mr. TROWBRIDGE; Mr. MOULTON.

101a and b. Advanced Agricultural Chemistry. (3) or (5) Mr. TROWBRIDGE; Mr. MOULTON; Mr. HAIGH.

102a. Slaughtering of Domestic Animals and Cutting and Curing of Meats. (2) Mr. TROWBRIDGE.

201a and b. Seminar. (1) Mr. TROWBRIDGE.

202a and b. Research in Agricultural Chemistry. Mr. TROWBRIDGE; Mr. MOULTON; Mr. HAIGH; Mr. PALMER.

203a. Chemistry of the Proteins. (3) Mr. TROWBRIDGE.

204a. Physiological Chemistry of the Domestic Animal. (3) Mr. TROWBRIDGE; Mr. PALMER.

AGRICULTURAL ENGINEERING

1a. Farm Buildings. (4) Mr. KELLEY.

2b. Farm Machinery. (3) Mr. KELLEY.

3a or b. Special Investigations. (2) or (3) Mr. KELLEY.

4a. Construction Methods. (2) Mr. KELLEY.

MANUAL ARTS

1a or b. Woodwork. (2) Mr. GRIFFITH; Mr. ROYSE.

2a or b. Metal Work. (2) Mr. BRIGHAM; Mr. ROYSE.

131a. House Framing. (2) Mr. GRIFFITH.

MECHANICAL ENGINEERING

130a. Farm Motors. (2) Mr. WHARTON.

CIVIL ENGINEERING

103a. Farm Surveying and Drainage. (3) Mr. WILLIAMS.

136b. Cement and Concrete Construction. (2) Mr. SPALDING.

158b. Rural Sanitation. (1) Mr. McCAUSTLAND.

159a. Country Roads. (1) Mr. SPALDING.

ANIMAL HUSBANDRY

1a or b. Types and Market Classes of Live Stock. (3) Mr. WEAVER; Mr. HUGHES; Mr. BENTLEY.

2a. Breeds of Live Stock. (3) Mr. ALLISON.

3b. Beef production. (3) Mr. ALLISON.

4b. Sheep Production. (2) Mr. HACKEDORN.

5b. Pork Production. (2) or (3) Mr. WEAVER.

6b. Horse Production. (2) Mr. TROWBRIDGE; Mr. HUGHES.

7b. Live Stock Judging. (3) Mr. HACKEDORN.

100a. Animal Nutrition. (3) Mr. ALLISON.

101b. Animal Breeding. (3) Mr. TROWBRIDGE.

102a. Advanced Live Stock Judging. (3) Mr. TROWBRIDGE; Mr. HACKEDORN.

103b. Stock Farm Management. (2) Mr. TROWBRIDGE.

- 104b. **Grazing.** Mr. ALLISON.
200. **Seminar.** Mr. TROWBRIDGE; Mr. ALLISON; Mr. MUMFORD; Mr. WEAVER; Mr. HACKEDORN.
201. **Experimental Feeding.** Mr. TROWBRIDGE; Mr. ALLISON; Mr. MUMFORD.
202. **Research in Animal Husbandry.** Mr. TROWBRIDGE; Mr. TROWBRIDGE; Mr. ALLISON; Mr. MUMFORD.
203. **Animal Breeding.** Mr. MUMFORD.
204. **Animal Nutrition.** Mr. ALLISON.
205. **Zoometry.** Mr. TROWBRIDGE.
206. **Research in Stock Farm Management.** Mr. MUMFORD; Mr. TROWBRIDGE; Mr. ALLISON.

BOTANY

- 1a and b. **General Botany.** (5) Mr. DURAND; Mr. MANEVAL; Mr. REED.
3a and b. **General Bacteriology.** (3) Mr. MANEVAL; Miss KEENE.
100a. **Plant Physiology.** (5) Mr. REED; Miss KEENE.
101b. **Taxonomy and Ecology of Seed Plants.** (5) Mr. MANEVAL.
108b. **Diseases of Forest Trees.** (3) Miss KEENE.
109b. **Diseases of Horticultural Plants.** (2) Mr. REED.
110a. **Principles and Methods of Disease Control.** (2) Mr. REED.

CHEMISTRY

- General Inorganic Chemistry.** Course 4a and b, or 6a and b, as announced under chemistry, page 144 of the general catalog.
15a and b. **Organic Chemistry.** (3) Mr. CALVERT; Mr. CONRAD; Mr. WRIGHT.
25a and b. **Analytical Chemistry.** (5) Mr. BROWN; Mr. MUENCH; Mr. DARM.

DAIRY HUSBANDRY

- 1a and b. **Elements of Dairying.** (3) Mr. SWETT; Mr. WING; Mr. COMBS.
100b. **Milk Production.** (4) Mr. ECKLES; Mr. WING.
101a and b. **Dairy Bacteriology.** (4) Mr. ECKLES; Mr. WERNER.
102a. **Cheese Making.** (2) Mr. RINKLE.
103a. **Dairy Manufactures.** (2) Mr. RINKLE; Mr. COMBS.
104b. **Dairy Manufactures.** (3) Mr. RINKLE; Mr. COMBS.
201. **Seminar.** (1) Mr. ECKLES.
202. **Research in Dairy Husbandry.** Mr. ECKLES.
203. **Special Investigations in Composition of Milk.** Mr. PALMER.
204. **Dairy Bacteriology.** Mr. ECKLES; Mr. WERNER.
205. **Dairy Manufactures.** Mr. RINKLE.

ENGLISH

1. **Composition and Rhetoric.** (3) Mr. RANKIN.

ENTOMOLOGY

- 2a and b. **Elementary Entomology.** (3) Mr. HASEMAN; Mr. HOLINGER.

- 103a. Elementary Morphology. (2) Mr. HASEMAN.
- 104b. Elementary Systematic Entomology. (2) Mr. HASEMAN.
- 105b. Forest Entomology. (2) Mr. HASEMAN; Mr. HOLLINGER.
- 109b. Apiary Culture. (2) Mr. HASEMAN; Mr. HOLLINGER.
- 110b. Advanced Economic Entomology. (3) Mr. HASEMAN.
- 111a. Morphology, Histology and Development of Insects. (3) Mr.

HASEMAN.

- 200. Research. Mr. HASEMAN.
- 201. Seminar. (1) Mr. HASEMAN; Mr. HOLLINGER.

FARM CROPS.

- 1a and b. Farm Crops. (5) Mr. HUTCHISON; Mr. McDONALD; Mr. HELM; Mr. EVANS.
- 2b. Grain Judging. (3) Mr. McDONALD; Mr. HELM.
- 3a. Field Crop Management. (2) Mr. HUTCHISON.
- 101a. Cereal Crops. (3) Mr. HUTCHISON; Mr. McDONALD.
- 102a. Forage Crops (not offered 1916-17). (3) Mr. HUTCHISON; Mr. HELM.
- 103b. Fiber Crops. (2) Mr. EVANS.
- 104b. Field Crop Improvement. (3) Mr. HUTCHISON.
- 105. Special Problems. Mr. HUTCHISON; Mr. McDONALD; Mr. HELM.

- 201. Research. Mr. HUTCHISON.
- 202. Seminar. (1) Mr. HUTCHISON.

FARM MANAGEMENT

- 105a. Farm Accounts. (3) Mr. GREEN.
- 110b. Farm Organization. (3) Mr. JOHNSON.
- 112a. Farm Records. (2) Mr. GREEN.
- 113b. Farm Administration. (2) Mr. JOHNSON.
- 200. Seminar. Mr. JOHNSON; Mr. GREEN.
- 201. Investigation of Types of Farming. Mr. JOHNSON; Mr. GREEN.
- 202. Investigation of Cost of Production and the Distribution of Labor. Mr. JOHNSON; Mr. GREEN.

207. Investigation of Systems of Farm or Rural Practices and Organizations. Mr. JOHNSON; Mr. GREEN.

- 111s. Farm Organization. (5) Mr. JOHNSON.
- 203s. Advanced Farm Management. (3) Mr. JOHNSON.

FORESTRY

- 2b. General Forestry. (3) Mr. DUNLAP.
- 10a. Dendrology. (3) Mr. PEGG.
- 11. Forest Seeds and Seedlings. (1) Mr. DUNLAP.
- 120. Silviculture. (5) Mr. DUNLAP.
- 121b. Forest Mensuration. (3) Mr. PEGG.
- 122b. Forest Engineering and Milling. (5) Mr. PEGG.
- 124s. Silvicultural Praxis. (2) Mr. DUNLAP.
- 125s. Mensuration. (3) Mr. PEGG.
- 126s. Lumbering. (3) Mr. PEGG.

- 127a. Forest Products. (2) Mr. PEGG.
- 128a. Lumber Trade. (1) Mr. PEGG.
- 129a. Forest Economics. (3) Mr. DUNLAP.
- 130a. Seminary in Silviculture. (2) Mr. DUNLAP.
- 132b. Wood Technology. (4) Mr. DUNLAP.
- 133b. Seeding and Planting. (2) Mr. DUNLAP.
- 200. Policy and Law. (3) Mr. DUNLAP.
- 201. Forest Organization. (3) Mr. PEGG.
- 202a. Forest Valuation. (3) Mr. PEGG.
- 203a. Lumbering. (2) Mr. PEGG.
- 205a and b. Care of Trees and Parks. (3) Mr. DUNLAP.
- 206a. History of Forestry. (1) Mr. DUNLAP.
- 207a. Forest Administration. (1) Mr. DUNLAP.
- 208b. Forest Plans. (8) Mr. PEGG.

GEOLOGY AND MINERALOGY

2a and b. Physical Geology. (3) Mr. TARB; Mr. PARKINS; Mr. HONESS; Mr. OWEN.

HOME ECONOMICS

1a and b. Selection and Preparation of Food. (5) Miss STANLEY; Miss SPAULDING; Miss JENKINS.

- 10a. Household Problems. (2) Miss STANLEY.
- 11b. Food Problems of the Household. (2) Miss KNEELAND.
- 20a. Dietetics for Nurses. (2) Miss FINDLEY.
- 51. Elementary Clothing. (3) Miss RONZONE; Miss FINDLEY.
- 52. Principles of Selection and Construction of Clothing. (2) Miss RONZONE; Miss FINDLEY.
- 101a. House Sanitation. (3) Miss KNEELAND.
- 110b. House Planning and Furnishing. (3) Miss RONZONE.
- 120. Food and Nutrition. (3) Miss KNEELAND.
- 121. Metabolism and Dietetics. (3) Miss STANLEY.
- 151. The Clothing Problem. (3) Miss RONZONE.
- 152. Advanced Clothing. (3) Miss RONZONE.
- 201. Research. Miss STANLEY; Miss RONZONE; Miss KNEELAND.

HORTICULTURE

1a and b. General Horticulture. (3) Mr. WHITTEN; Mr. LAWRENCE.

- 2a. Plant Propagation. (2) Mr. WIGGANS.
- 3a. Vegetable Gardening. (3) Mr. GARDNER.
- 100a. General Pomology. (2) or (3) Mr. LAWRENCE.
- 101b. General Pomology.
- 102. Elements of Landscape Gardening. (2) Mr. MAJOR.
- 103. Floriculture. (4) Mr. MAJOR.
- 104a. Fruit Judging. (1) Mr. WIGGANS.
- 105a. Advanced Pomology. (3) Mr. WHITTEN.
- 106b. Truck Farming. (3) Mr. GARDNER.
- 107. Plant Materials. (2) Mr. MAJOR.

108. Elementary Design. (3) Mr. MAJOR.

109. History of Landscape Gardening. (2) Mr. MAJOR.

110a. Theory and Principles of Landscape Gardening. (2) Mr. MAJOR.

112b. Spraying. (2) Mr. LAWRENCE.

113a. Packing and Marketing Fruit. (2) or (3) Mr. LAWRENCE.

114a and b. Evolution of Cultivated Plants. (3) Mr. WHITTEN.

115. Special Problems. Mr. WHITTEN; Mr. LAWRENCE; Mr. MAJOR; Mr. WIGGANS; Mr. GARDNER.

200. Special Investigation. Mr. WHITTEN; Mr. LAWRENCE; Mr. MAJOR; Mr. WIGGANS; Mr. GARDNER.

AGRICULTURAL JOURNALISM

127a and b. Agricultural Journalism. (3) Mr. ROSS.

METEOROLOGY

1b. Meteorology. (1) Mr. REEDER.

PHYSICS

1a and 2. Elementary Physics. (5) Mr. STEWART; Mr. RENTSCHLER; Mr. CORNELIUS.

POULTRY HUSBANDRY

1a. Elementary Poultry Raising. (3) Mr. KEMPSTER; Mr. RUCKER.

2b. Elementary Poultry Raising. (3) Mr. KEMPSTER; Mr. RUCKER.

3a. Marketing Poultry Products. (3) Mr. KEMPSTER.

4a. Poultry Judging. (3) Mr. RUCKER.

5b. Poultry Farm Management. (3) Mr. KEMPSTER.

6b. Incubating and Brooding Practice. (3) Mr. KEMPSTER; Mr. RUCKER.

RURAL ECONOMICS

2a and b. Principles of Economics. (3) Mr. GROMER.

100a and b. Principles of Rural Economics. (2) Mr. GROMER.

101a. Rural Organization and Marketing. (3) Mr. GROMER.

102b. Land Tenancy. (2) Mr. GROMER.

104a. Economic History of Agriculture. (2) Mr. GROMER.

200. Seminar. Mr. GROMER.

RURAL SOCIOLOGY

115a and b. Rural Sociology. (2) Mr. BERNARD.

SOILS

1a and b. Soil Physics and Soil Fertility. (5) Mr. MILLER; Mr. HUDELSON; Mr. KRUSEKOPF.

2b. Soil Management. (3) Mr. HUDELSON.

101a. Soil Technology. (3) or (5) Mr. MILLER; Mr. LeCLAIR.

102b. Soil Surveying. (2) Mr. MILLER; Mr. KRUSEKOPF.

103b. Soil Investigations. (3) Mr. MILLER; Mr. HUDELSON.

104b. Soils of the United States. (2) Mr. MILLER.

200. Seminar. (1) Mr. MILLER.

201. Soil Research. (2-5) Mr. MILLER.

VETERINARY SCIENCE

1a. Anatomy and Physiology. (5) Mr. CONNAWAY; Mr. BACKUS; Mr. RIDGEWAY.

2b. Veterinary Medicine and Surgery. (3) Mr. BACKUS; Mr. RIDGEWAY.

104. Topographic Veterinary Anatomy. Mr. CONNAWAY; Mr. BACKUS.

105a. Veterinary Medicine. (3) Mr. BACKUS; Mr. RIDGEWAY.

106a. Veterinary Surgery and Obstetrics (advanced course). (3) Mr. BACKUS; Mr. RIDGEWAY.

107. Stock Farm Sanitation and Disease Prevention (advanced course).

(a) Infectious Diseases. (4) Mr. CONNAWAY; Mr. GINGERY; Mr. DURANT.

(b) Animal Parasites: (2) Mr. BACKUS; Mr. RIDGEWAY.

209. Investigation. Mr. CONNAWAY; Mr. BACKUS; Mr. DURANT.

ZOOLOGY

1a and b. General Zoology. (5) Mr. CURTIS; Mr. DODDS; Mr. GLASCOCK.

For further information regarding the Four Year Curriculum in Agriculture for Men, the Four Year Curriculum in Agriculture for Women or the Five Year Curriculum in Forestry write to

F. B. MUMFORD,

Dean, Faculty of Agriculture,

University of Missouri,

Columbia, Missouri.

D. TWO-YEAR WINTER COURSE IN AGRICULTURE

SHORT COURSE

GENERAL STATEMENT

The purpose of the two-year winter course in agriculture, which is more often called the short course, is to teach better farming methods. It is essentially a practical course for practical farmers. More than 2,700 young men have enrolled in this course and each of these young men has become a better farmer by reason of the instruction secured. At present, nearly 300 men and boys annually enroll in this course. They come from nearly every county in Missouri and from many adjoining states.

The short winter course gives the largest amount possible of practical instruction in judging, breeding, and growing corn; in soil fertility, farm crops, and farm buildings; in live stock judging, stock feeding, animal breeding, and live stock farming; in growing, handling, and selling orchard products; in breeding, feeding, and handling dairy cows; in making butter and cheese, and handling milk products; in farm butchering and meat curing; in diseases of farm animals and their treatment; in injurious insects; in farm carpentry and blacksmithing; in poultry raising; in farm management;

in the keeping of farm accounts; and in rural life problems, co-operation, etc.

Admission. Any person more than sixteen years old may enroll for instruction in the two-year winter course. No entrance examinations are given, but those admitted are supposed to have at least the equivalent of a common school education before entering. The work given is so flexible that many persons of mature years and much experience have found it profitable to attend this course along with young men and boys not yet out of their teens. It is not uncommon to find a boy of eighteen years attending classes along with a matured and successful farmer more than 40 years of age. Sometimes father and son both attend the course.

Time: The two-year winter course is arranged for the convenience of farmers. All of the work comes in November, December, January and February. One can work on the farm eight months of the year and go to the short course the other four.

The course is divided into four terms. Two terms are offered each year. Each term is seven weeks long. The first term of the short course begins Wednesday, November 1, 1916, and the second term, Monday, January 8, 1917.

Each of the four terms is complete within itself. All the subjects taught in each term are finished at the end of the term, so that each term is a complete seven weeks' short course. Students can enter in November or January, whichever is most convenient.

Expenses: Students in the two-year winter course pay no tuition. An incidental fee of \$6 a term is required of all students, and a laboratory fee in those departments in which the students use materials. Board and room will cost from \$3.50 to \$5 a week.

The cost for books and stationery will be very small. Most of the instruction is given by lectures and demonstrations, and few textbooks are required. Books, however, are recommended, and it is very desirable that the winter course students add to their libraries by the purchase of a few standard books on agriculture. The entire cost of a seven weeks' term need not exceed \$55.

Certificate: Students who complete the required work of the two-year winter course will be given a certificate.

COURSE OF STUDY

In each term the student is required to take certain courses. In addition to the required courses he is permitted to choose one or more from the list of courses that are called "optional." In each term the required courses cover pretty generally the branches of agriculture found on Missouri farms. The student is given the opportunity to choose from the list of optional courses those along the lines that he is interested in most. A student does not have a full course unless he takes all the required courses and the full number of optional courses indicated for each term.

If a student enters the University November 1, 1916, for the first time he will take the courses under *First Year, First Term*. If he

returns January 8, 1917, he will take the courses under *First Year, Second Term*. If a student cannot enter at the opening of the course on November 1, 1916, he can enter without much inconvenience for the first time Monday, January 8, 1917. If he enters then he will take the courses listed under *First Year, Second Term*, with the exception that he will take a different course in stock judging, one adapted to the beginner, and he cannot take Beef or Pork Production. If he returns for the fall term of 1917 he will then take the *First Year, First Term* courses. Those who have completed both terms of the first year will enter the *Second Year, First Term*.

All the work is thoroly practical. Much of the instruction is given by having students actually do the work under proper direction.

Following is an outline of courses offered:

FIRST YEAR, FIRST TERM

November 1 to December 21, 1916

(Required)	Periods a week
Cereal crops and grain judging	6
Farm dairying or plant propagation	4
Live stock judging	3
Feeding and management of live stock	5
Farm poultry management	3
(And any one of the following optional courses.)	
Woodwork	3
Forging	3
Fruit packing	3
Vegetable gardening	3
Farm bee keeping	3

FIRST YEAR, SECOND TERM

January 8 to February 23, 1917

(Required)	Periods a week
Prevention and treatment of animal diseases	4
Farm dairying or plant propagation	4
Live stock judging	3
Soil tillage	3
Animal breeding	3
Forage crops	4
(And any one of the following optional courses.)	
Woodwork	3
Forging	3
Farm poultry management	3
Poultry judging	3
Beef production	3
Pork production	3
Dairy cattle judging	1

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Advanced woodwork	3
Advanced forging	3
Spraying	3

SECOND YEAR, FIRST TERM

November 1 to December 21, 1916

(Required)	Periods a week
Injurious insects	4
Infectious diseases	3
Farm accounting	5
Soil fertility	3
(And any three of the following optional courses.)	
Breeds of live stock	3
Sheep production	3
Farm poultry practice	3
Horse production	3
Farm construction methods	4
Rural economics	3
Commercial orcharding	3
Fruit packing	3
Crop rotations	3

SECOND YEAR, SECOND TERM

January 8 to February 23, 1917

(Required)	Periods a week
Farm orchard and garden management	4
General farm management	3
Milk production	3
Farm machinery and engines	4
(And any three of the following optional courses.)	
Advanced grain judging	3
Advanced stock judging	3
Co-operative banking	3
Incubating and brooding practice	3
Production of certified seeds	3
Soil management	3
Dairy cattle judging	1
Advanced woodwork	3
Advanced forging	3
Landscape gardening	3
Farm butchering, meat cutting and curing	3
Spraying	3
Dairy Sanitation	3

E. SHORT COURSE FOR WOMEN

The short course for women lasts seven weeks. It begins Wednesday, November 1, 1916, and ends December 21, 1916. The time corresponds to the first term of the Two-Year Winter Course. Work is given in those subjects with which a woman as a practical home-maker should be familiar. Economy in the management of household affairs is the keynote of the whole course. The student learns how to save material, time, and labor. The course offers the kind of knowledge which a woman can apply in her every-day housework and relations to the farm. In addition to the courses in home economics, practically all the work offered in the Two-Year Winter Course for young men is open to women who desire to elect any of these courses.

Entrance Requirements: Any woman more than sixteen years old may attend. Older women who have had the care and responsibility of managing a house will find much that will interest them, and because of their experience will derive even greater benefit from the course than girls who are less experienced. It is desirable that all students should have at least a common school education. There are no entrance examinations.

Fees and Expenses: There is no tuition fee, but each student pays an incidental fee of \$6. In the courses in foods there will be a laboratory fee of \$2; in the sewing courses a fee of 50 cents. Rooms may be secured at from \$8 to \$14 a month. Where two persons occupy the same room, each pays about one-half the above sum. Board may be had at prices varying from \$3.50 to \$4.50 a week. The expenses while in Columbia need not exceed \$60.

OUTLINE OF COURSES

Subject	Number of lessons
Preparation of food	35
Preparation of meals	14
Preservation of food for profit	14
Sewing	35
Dressmaking	35
Advanced dressmaking	35
Millinery	21
Home care of the sick	14
Preventive medicine	14
House decoration	21
Poultry husbandry	35
Farm dairying	21
Home gardening	21

Other courses will be offered if sufficient numbers demand them.

F. COURSE IN DAIRY MANUFACTURES

Since the establishment of the department of dairy husbandry in 1901 instruction in creamery work has been given each year. More recently the manufacture of ice cream and of other products such as cottage cheese and cultured milk has also received attention. The object of the course is to assist those who desire to prepare themselves for work in creameries, ice cream factories or city milk plants. The course also trains students for the successful operation of large private dairies where the manufacture of dairy products is an important feature. The demand for capable well trained men along these lines has exceeded the supply within recent years. The course begins January 8th and ends February 23rd, 1917. The laboratory fee for the course complete is \$6.00.

	Lectures	Laboratory periods
Farm dairying	14	14
Milk production	21	—
Testing dairy products	0	21
Dairy sanitation	21	—
Creamery buttermaking	14	21
Ice cream making	14	14
Creamery calculation	14	0
Dairy mechanics	14	0
Dairy cattle judging	0	7
Inspection trips		

G. FARMERS' SHORT COURSE

In January each year the college offers a short course in agriculture for farmers in connection with the Farmers' Week program arranged in cooperation with the State Board of Agriculture. In this course special lectures and demonstrations in soils, farm crops, animal husbandry, dairying, horticulture, farm management, forestry, rural economics, veterinary science, and poultry farming are given in the classrooms, laboratories, and live stock pavilion belonging to the University. Two thousand and eleven farmers were enrolled for this course in 1916. The course will be given again in January 1917.

For further information concerning the short winter courses in agriculture write to

P. M. BRANDT,
Superintendent of Short Courses,
University of Missouri,
Columbia, Missouri.

FACULTY OF THE COLLEGE OF AGRICULTURE

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Secretary of Agricultural Extension, in charge of Agricultural Extension Service.

MERRITT FINLEY MILLER, B. S. in Agr., M. S. A.,

Professor of Soils.

40 ANNOUNCEMENT OF THE COLLEGE OF AGRICULTURE

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Session 1916-17, at Columbia

1916

June 8.....Thursday, Registration
June 9.....Friday, organization of classes
August 4.....Friday, examinations

September 14, 15, and 16.....	Thursday, Friday, and Saturday, entrance examinations
September 18, 19, and 20.....	Monday, Tuesday, and Wednesday registration
September 20.....	Wednesday, 11, a. m., opening convocation
September 21.....	Thursday, 8 a. m., class work in all divisions begins
November 1 to December 21...	First term, Two-Year Winter Course in Agriculture

November 29.....	Wednesday, 4 p. m.	} Thanksgiving holidays
	to	
December 4.....	Monday, 8 a. m.	} Christmas holidays
December 21.....	Thursday, 4 p. m.	
1917	to	
January 3.....	Wednesday, 8 a. m.	} Midyear examinations
January 8 to February 23.....	Second term, Two-Year Winter Course in Agriculture	
January 24.....	Wednesday	} Midyear examinations
	to	
January 31.....	Wednesday	

February 1, 2.....	Thursday and Friday, registration, second semester	
February 3.....	Saturday, 11 a. m., opening convocation	
February 5.....	Monday, 8 a. m., class work in all divisions begins	
February 22.....	Thursday, Washington's birthday, holiday	
April 4.....	Wednesday, 4 p. m.	} Easter holidays
	to	
April 10.....	Tuesday, 8 a. m.	
May 27.....	Sunday, Baccalaureate address	
May 30.....	Wednesday, Commencement day	
May 31.....	Thursday	} Final examinations
	to	
June 7.....	Thursday	

THE
UNIVERSITY OF MISSOURI
BULLETIN

GENERAL SERIES

EDITED BY
H. H. KINYON
University Publisher

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THE UNIVERSITY OF MISSOURI BULLETIN

VOLUME 17 NUMBER 21

GENERAL SERIES
1916, No. 8

ANNOUNCEMENT
OF THE
TWO-YEAR WINTER COURSE AND
OTHER SHORT COURSES
COLLEGE OF AGRICULTURE
1916-1917



UNIVERSITY OF MISSOURI
COLUMBIA, MISSOURI
AUGUST, 1916

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UNIVERSITY OF MISSOURI
COLUMBIA, MISSOURI
AUGUST, 1916



Men who received certificates of graduation from the Two Year Winter Course in Agriculture in February 1916. Reading from left to right.

Top row: W. B. Harrison, Auxvasse; E. C. Heald, Lakenan; Ralph Thieman, Aulville; Chever Manring, McFall; H. Scott Cunningham, Palmyra; H. D. Guengerich, Joplin; F. H. Stedem, Marshall; D. W. Catlin, St. Louis; Kalo Monsees, Smithton; E. J. Hubble, Maysville; W. J. Jackson, Eldorado Springs; J. D. Alplanalp, Grant City; V. C. Norris, Novelty.

Third row: R. T. McMahon, Ellsberry; D. E. Smallwood, Steelville; W. C. Spurgeon, High Gate; A. R. Cannell, Poplar Bluff; G. W. Gallaher, Windsor; H. T. Oltman, Reeds.

Second row: E. K. Hasty, Graham; C. W. Atkins, Holden; L. T. White, Nashville, Ill.; W. A. Wood, Linneus; H. O. Whitaker, Cameron; F. I. J. Brown, St. Joseph; H. I. Smith, Caledonia.

First row: Adolph Keiss, Jackson; C. S. Heald, Lakenan; Herbert Richter, LaGrange; E. R. Neidert, High Gate; M. P. Tenholder, Leopold; H. L. Rozier, St. Genevieve; Cleat Brooks, Eagleville; A. J. Schneider, Lyons.

TWO-YEAR WINTER COURSE IN AGRICULTURE (SHORT COURSE)

Twenty-one years ago the Short Course in Agriculture was established by the University of Missouri. Since then 2734 students have been enrolled in this practical course. Its influence has been state-wide. Every county in Missouri, except one, has sent students to the short course. Young men from other states have come in increasing numbers to take advantage of the thoroly practical instruction given in this course.

The Two-Year Winter Course in Agriculture is a practical course for practical farmers. It is especially arranged to meet the needs of the man who wants to farm on a business basis—make money, live comfortably, and be an active worker for the community in which he lives.

It offers unlimited opportunities for one to acquire valuable information. This is especially appreciated by the young man who hopes some day to be a farm owner but who will now have to pay from five to ten times as much for a farm as his father had to pay twenty years ago. It trains for successful farming.

The Two-Year Winter Course teaches:

How to raise larger crops with less labor, and better live stock with less expense.

How to select and care for seed corn and other grains so that instead of "running out" they will become better from year to year.

How to handle soils so there will be no waste of soil moisture or fertility.

How to rotate crops and what crops to grow so that the farm will increase in fertility year after year.

How to apply commercial fertilizers and handle barnyard manure for best results.

How to plan farm buildings with proper regard for ventilation, light, heat, and cleanliness.

How to operate all kinds of farm machinery including gasoline engines.

How to select and judge all classes and breeds of cattle, horses, sheep, hogs, and poultry.

How to figure balanced rations for farm stock and combine feeds so as to secure the greatest gains at lowest cost.

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How to apply the principles of breeding so as to bring about improvement in all kinds of live stock.

How to manage a stock farm so as to assure generous returns for investment and labor.

How to recognize and successfully combat those insect pests that endanger health and destroy farm crops.

How to care for sick animals and perform simple surgical operations.

How to make post-mortem examinations, vaccinate against black leg, and immunize against hog cholera.

How to propagate trees and shrubs by grafting and budding.

How to manage hotbeds and care for the home vegetable garden.

How to plant, cultivate, prune, and spray fruit trees as well as how to gather, pack, and market the fruit.

How to lay out and care for the home grounds so as to make them at once attractive and convenient.

How to classify soils and adapt cropping systems to the various soil types.

How to care for edged tools and do all ordinary carpentry and black-smithing with special reference to work along lines which are particularly useful on the farm.

How to breed, feed, and manage poultry; operate incubators and brooders; and build good, useful poultry houses.

How to organize farmers' clubs and secure social and business cooperation between people in the country.

How to operate cream separators, test milk for butter fat, make individual tests of dairy cows, handle milk and cream either for direct sale or to make up into butter.

How to select high-producing dairy cows and how to feed and care for them in order to get the best returns.

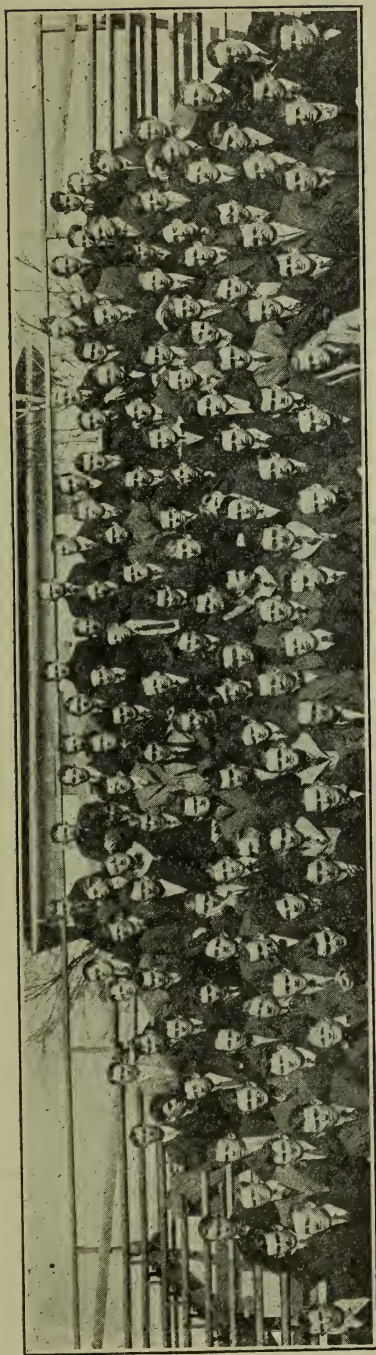
How to feed and care for dairy calves.

How to manage a farm on a business basis and keep an accurate record of all matters pertaining to the management of a farm.

A GOOD INVESTMENT

Men who have completed the work of the Two-Year Winter Course in Agriculture have had their earning capacity increased \$50 to \$500 a year. Thus, it is seen that the money expended in taking the short course is really invested at from 20 to 250 per cent per annum. From a dividend paying standpoint, there are few investments open to young men in Missouri which can in any way compare with this.

Whether a man returns to his own or to his father's farm, or whether he enters the employ of another, the short course will prove equally valuable. Year by year the college receives an increasing number of inquiries for students to work on farms at wages materially higher than are paid to untrained men. The demand for trained farm



Some of those who attended the Short Course in 1915-16.

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managers is steadily growing. The services of men who farm with their heads as well as their hands are being eagerly sought for. Any wide-awake young man may place himself in a position to take advantage of these opportunities by entering the Two-Year Winter Course and completing its requirements in a satisfactory manner.

This course has been recently expanded so that a thoro training in several specialized branches of farming may be secured. Special subjects are arranged to meet the needs of those who want to secure a training which will prepare them to become successful breeders of pure bred live stock; growers of pure bred high yielding strains of seeds, principally corn; dairymen; fruit growers and poultry breeders.

WHAT THE GRADUATES THINK OF THE SHORT COURSE

These statements are taken from a few of the letters that have been received from those who have taken the full two years' course. If space would permit, dozens of similar statements could be included.

"I am positive the Short Course has helped me. I would not exchange it for \$2,000 to begin business with." W. M. ROBERTS, Maysville, Mo.

"This year we have tied the ribbons at three horse shows and a corn show. Also by agreement we put in six days (for one man) spraying an apple orchard in our community and sold our share of the crop of apples, receiving \$75 for same and we have an over supply of apples in our county this year. We believe the Short Course pays." W. M. and J. G. ROBERTS, Maysville, Mo.

"When viewed from a dollars and cents standpoint the short course is worth ten times what it actually costs. By applying the principles taught in the veterinary science department, I feel sure I have saved in live stock many times the cost of the course." DENNIS PHELAN, Allenton, Mo.

"My vocabulary will hardly express my appreciation and praise of the short course. I wish I could take it over again for fear they have added something I did not get. Its value cannot be reckoned in money." R. S. HEWLETT, Eldorado Springs, Mo.

"It enables one to grow larger crops with less expense, also teaches one how to arrange the rotations of the different crops to the best advantage. It teaches the value of pure bred live stock." M. A. GREGORY, Marling, Mo.

"I am not only able to raise better crops of all kinds, keep up the fertility of the soil better and raise better live stock but I have a broader view of life generally." F. M. RICKMAN, Wellsville, Mo.

"Before I took the short course I was working as a farm hand at less than \$20 a month. Last year I was tester for the Jackson County Cow Testing Association at \$50. Now I am herdsman for the man whose name is on this letterhead, with one of the best herds in the state, at \$60 a month and board." E. F. PENTECOST, Martin City, Missouri.

"I now have double the amount of live stock the place had before I attended the Short Course and it is paying a greater profit than formerly. While the course (all four terms) cost less than \$300 I would not do without it for \$600." W. D. ASHBURN, Farmington, Mo.

"It has helped my father and myself in keeping up soil fertility, planning rotations, feeding our cattle and hogs better rations and in cutting down surplus work stock on a farm of 550 acres. Speaking frankly I have gotten more good from the practical work given by the Farm Management Department, for how few of us farmers try to be strictly business men." W. P. HOCKENBERRY, Bunceton, Mo.

"Am breeding my stock to the best sires I can find and am handling pure bred cattle." J. F. ESTES, Polo, Mo.

"Numerous as are the different branches of agriculture found on a general farm there is none of them about which I did not learn something of considerable value which can be put to some practical use." E. H. AUTHENREITH, Bluffton, Mo.

"The seasons have been unfavorable on account of drouth and wet weather combined but I have grown as high as fifty bushels of corn on a place that people seemed to think was worn out, and that without fertilizers." H. B. HATFIELD, Braymer, Mo.

"I can grow more corn now than I could before taking the course and I am maintaining my soil fertility better than I did before." LOUIS HAUSMANN, Labadie, Mo.

"This course gives you the many years of past experience which has taught others and gives you a chance to begin where others stopped off instead of spending the best part of your life in finding out what should be known in the beginning." R. E. HIGGINS, Houstonia, Mo.

"I have used my training on every hand and to its value can lay no estimate that will be anything like correct." G. H. MORTHLAND, Molino, Mo.

"I have just been offered the position of managing a 1000-acre ranch in Kansas, a position which I could not have filled before I took the course." B. Y. EDELEN, Pleasant Hill, Mo.

"One of the greatest helps of the course is the great realization of possibilities. It has taught me not to stay with a losing proposition." H. A. QUAINANCE, Bucyrus, O.

"The Short Course was certainly worth while. By its training I have and am raising more corn than before, more oats, wheat, and cotton and am now building up the soil instead of tearing it down." B. M. WHITENER, Swan Lake, Ark.

"The Short Course was certainly worth while to me. It has given me a broader view of modern agriculture, and farming does not seem to be half as much drudgery as it did before. Before I took the course I was receiving \$20 a month and board. Last winter I received \$60 a month on a large dairy near Kansas City. I had charge of the bottling

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work. That is what the short course has done for me." H. L. PEABODY, Smithton, Mo.

"I had no capital and no land and started after I had received my diploma as a farm hand. I have come up the ladder from a farm hand at \$30 month to \$52 a month and board as an irrigator." HAROLD LINN, Hotchkiss, Colo.

WHO MAY ATTEND

The Two-Year Winter Course is intended primarily for students who have not completed high school. There are no examinations given to enter this course. The only requirement is that a student must be 16 years old or older. Experience in farm work is of great value in helping a student get the most out of the work. Men of mature years who have had the responsibility of managing a farm will find the course of great and lasting value. Among the most enthusiastic students who have taken the course and who give it their hearty endorsement are some of the large landowners and farmers of Missouri.

A student should have the equivalent of a common school education. However, this is not absolutely necessary and mature men of good average ability who are willing to work hard will get along very well with even less preparation than is afforded by the common schools.

High school graduates and even college graduates who lack the practical facts of scientific agriculture find in this course the information they seek. The work is so elastic that men with advanced preparation are able to occupy their time as fully as the men who come without the preparation of the high school, but with the practical preparation of the farm. As a general rule, students who have completed the course in a high school are advised to attend the four-year course in preference to the short course.

The course is open to both men and women.

THE COST OF THE COURSE

The cost of the four terms of the Two-Year Winter Course including board, room, books, fees, other necessary expenses and not including railroad fare need not exceed \$220. This is an average cost of \$55 a term. As each term is a complete seven weeks short course a student can take the course as it best suits his pocket-book. Frequently a student will graduate several years after he first enters the course.

Each student must pay to the University a library, hospital and incidental fee of \$6 each term. Small laboratory fees to cover the cost of material used and equipment destroyed are charged in certain courses. In the butchering course this fee is fifty cents; in incubation

and brooding it is \$1; in the grain judging and veterinary courses it is \$1, and in farm dairying and the shop courses it is \$2. A fee of \$1 is required for each certificate of graduation. These are the only charges made by the University for this course.

Following is a list of books that are required in certain subjects during the four terms:

Dairy Cattle and Milk Production, Eckles	\$1.60
Popular Fruit Growing, Green	1.00
Types and Market Classes of Live Stock, Vaughn	2.00
Types and Breeds of Farm Animals, Plumb	2.00
Productive Feeding of Farm Animals, Woll	1.50
Judging Live Stock and Selection, Curtis	2.00
Breeds of Live Stock, Gay	1.50
Feeds and Feeding, Henry & Morrison	2.25
Sheep Management, Kleinheinz	1.60
Poultry Production, Lippincott	2.00
American Standard of Perfection (for poultry)	2.00
Forge Work, Ilgen .....	.80
Essentials of Woodworking, Griffith .....	.75
Farm Management, Warren	1.75
Farm Account Ledger .....	.75
Agricultural Engineering, Davidson	1.50
Field Crop Production, Livingston	1.40

Only a few of these books are purchased each term. Nearly every book is used in more than one subject and each is a valuable addition to the library of any farmer. Books will cost about \$9 a term. Students bring at least \$35 with them when they first come to Columbia.

EQUIPMENT USED IN INSTRUCTION

All the equipment of the University that is needed in teaching short course students is available for that purpose. Some of the equipment which is in more general use is described below.

BUILDINGS

Agriculture Building: A two-story structure with a high basement and an auditorium seating 500 persons. More than 1,000 students may be accommodated at one time in classrooms and laboratories. The building includes offices of the dean and director, the State Board of Agriculture including the state veterinarian, the seed-testing laboratory, the agricultural library, the department of soils, farm crops, animal husbandry, farm management, rural economics, and the agricultural extension service. The short course men make their headquarters in this building.

Horticulture Building: A stone building, two stories and a well-lighted basement with plant house and insect room, classrooms, labora-

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tories, offices and preparation rooms for horticulture and entomology. In this building students learn how to make grafts and buddings and other methods of propagating plants, study methods of growing fruits and how to control insect pests of farm crops.

Dairy Building: A stone building, two stories 'with cheese-curing room in the basement, rooms for creamery work, cheese making, dairy work, milk-testing laboratory, offices, and classrooms.

Gordon Hotel Building: The department of home economics is housed in this building which is leased by the University. Lecture rooms and laboratories for the teaching of the various branches of home economics are provided.

Live Stock Pavilion: A new live stock judging pavilion is available for the teaching of live stock judging. This building is adjacent to the barns on the University farm. It is of steel and wood construction. The outside dimensions are 90x160 feet. The arena is 50x120 feet. It has a seating capacity of 1500. The arena can be divided by dropping a large curtain, making it possible to hold two large classes in stock judging at the same time. The building includes in addition offices, practicum rooms, locker rooms, and shower baths. It is also used as a gymnasium by the short course students.

Greenhouses: Six greenhouses are available for instruction and investigation. Three greenhouses, each 25x100 feet and two, each 16x100 feet, and one 25x50 embracing a total of 10,350 square feet under glass are used by the department of horticulture, entomology, botany, soils, and farm crops. In addition to this there are 2000 square feet of hot bed and cold frame space under glass. This glass space affords facilities for the short course students to put into practice things taught in the classroom that cannot be observed in the field in winter.

Veterinary Building: The veterinary department is housed in a three-story building devoted exclusively to investigation and instruction in veterinary science. The building contains laboratories for anatomy, physiology, investigations in contagious and infectious diseases, the preparation of hog cholera serum, and operating rooms where short course men learn to perform simple surgical operations.

Poultry Building: A two-story building, including general office, incubator room equipped with various types of incubators, classrooms, and laboratory.

The poultry department has one fifteen-pen laying and breeding house, a feed house with killing pen in the basement, two farm poultry houses, one experimental breeding house, and ten portable colony houses. Several hundred fowls, representing the popular varieties, are kept for instructional and experimental purposes so that students who are interested in raising high class poultry have ample opportunity for study.

Horse Barn: This is a large stone basement barn originally designed for a beef cattle barn. It has been recently remodeled. It

contains a number of box stalls, open stalls and a convenient harness room. A 250-ton stone silo is in connection. Adjoining it is a large machinery shed where the wagons and farm machinery used in operating the farm are housed.

Dairy Barn: The dairy barn is modern in every detail. It has room for seventy-five cows. It is equipped with box stalls, calf pens and the usual stanchion equipment for cows. Large feed bins are located in the loft, from which mixed feed is carried in chutes to the feed room. In connection are two concrete silos with a capacity of 130 tons each.

Sheep Barn: The sheep barn has been recently moved, remodeled and enlarged. It is of sufficient size to accommodate the flocks of pure bred sheep which are maintained for instructional and experimental purposes.

Hog Barn: This is a stone and frame barn built to accommodate breeding animals. It is equipped with concrete floors, iron pen divisions, dipping tanks, scales, and feed cookers.

Beef Cattle Sheds: The beef cattle are partly housed in a long feeding shed. The shed is divided into fifteen divisions with a lot in connection with each. This arrangement is to accommodate the cattle for feeding experiments.

LABORATORIES

Farm Machinery: A large stone building is equipped with the latest types of tillage machines, self-binders, mowers, corn planters, hay loaders, manure spreaders, and gasoline engines. Instruction in farm construction methods is also given in this building.

Meat Cutting: A large room is set aside in Schweitzer Hall for instruction in farm butchering. Farm animals are slaughtered out in the open and brought to this room where they are cut up. It is well equipped affording ample facilities for instruction in home meat curing.

Food Preparation: This is the room in which cooking is taught the students in the short course in home economics. It is equipped with work tables for twenty-four students. Each table is equipped with necessary pans, pots, knives, and other cooking utensils. Several ranges are a part of the equipment. The cooking of meats and vegetables and the baking of breads, pastry and cakes and the preparation of full meals is taught in this laboratory.

Sewing: Two large rooms in the Gordon Hotel Building are equipped as sewing laboratories. A number of sewing machines of popular make and of late pattern are available. The laboratories are also equipped with dress forms, tables for drafting and cutting patterns and dresses, electric irons and ironing boards used in pressing finished articles and the numerous other smaller articles of equipment necessary.

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Entomology: The laboratories and insect rooms are located in the Horticulture Building and are supplied with microscopes, dissecting instruments, breeding cages, spraying machines, and insecticides. The museum contains collections of several thousand species of the more injurious and beneficial insects, arranged to illustrate their habits of work and life history. This equipment is all available for study.

Horticulture: The horticultural laboratories occupy about 6,000 square feet of forcing space under glass, a laboratory for the propagation of plants, a fruit packing and spraying room, and storage room for cuttings, bulbs, stocks, and scions. The out-of-door collection on the horticultural grounds comprises about one thousand varieties of fruits, ornamental shrubs and trees for a study of planting, pruning, cultivating, and spraying.

In addition, eighty acres in the loess soil formation adjacent to Columbia is being developed in orchards, vineyards, etc., of a size to demonstrate the best fruit growing methods on a commercial scale. It also comprises a large collection of young seedling tree fruits which are the result of extensive breeding experiments now being conducted by the department, all of which are used in instructing short course students in modern fruit growing methods.

Farm Crops: The laboratories for instructional work include a large and well-equipped laboratory for the study and exhibition of the various types and most important varieties of farm crops, including material and equipment for the judging, grading, and handling of grains, a room for storing and fumigating classroom material, a germinating room, a seed house, and a seed-testing laboratory maintained in co-operation with the U. S. Department of Agriculture. The department also maintains a plant garden in which are grown the various types and principal varieties of all farm crops, together with the most prominent wild forms to which they are related.

Dairy Husbandry: Facilities for instruction in creamery work include power separators, churns, pasteurizers, sterilizers, and butter printers; a cheese room provided with vats, cheese presses, and curing room; cream separators, milk testing apparatus, and ice cream freezers; refrigerating and cold storage plant; a laboratory for instruction in dairy sanitation.

From 500 to 1,000 pounds of butter are manufactured each week throughout the year.

Soils: The facilities for instructional work in soils include a large soils laboratory for the required course of instruction, balance rooms, and storage rooms. A plant house 30 by 65 feet is provided for special experiments by students. In addition, the soil experiments in progress on the Agricultural Experiment Station fields are studied while the results of the soil survey and of the outlying soil experiment fields are used to good advantage in teaching the short course students how to handle Missouri soils.

University Serum Farm: The hog-cholera serum plant is located on a 90-acre farm about three miles north of the University farm on the Wabash railroad. The plant has a capacity of 50,000,000 cubic centimeters of serum a year. When at full capacity 1500 hyperimmune hogs will be kept and with it in operation the College of Agriculture can meet any emergency. With this equipment the students in the College of Agriculture study the methods of controlling and eradicating hog cholera as well as the manufacture of serum.

Agricultural Library: Altogether there are about 15,540 books relating to all phases of farming available for study. In the agricultural library there may be found current files of all prominent American farm papers, experiment station bulletins, reports of the national Department of Agriculture, and of various agricultural societies of Missouri and other states. The library is open to short course students at all times and affords a splendid opportunity for them to become familiar with the choicest farm literature. It is located in the Agricultural Building.

STUDENT LIFE AT COLUMBIA

The University of Missouri is noted for the democratic feeling that prevails thruout the large body of students who attend. This spirit is exemplified by the whole hearted welcome extended the short course students when they arrive. The life of the three thousand or more students who study together at the University of Missouri during the winter is as wholesome as in their home communities and short course men are quickly made a part of this great democratic body of young Missourians.

ROOM AND BOARD

Room: The University has two dormitories for men. Most of the rooms in these dormitories are taken by regular term students. The Young Men's Christian Association maintains a dormitory for men in its building. Occasionally there are a few vacancies in this dormitory so that some short course men can room there. For the most part, however, the short course men room in private residences. The usual price for a room is from \$10 to \$12 a month. Two men occupy a room. A room therefore costs each man from \$5 to \$6 a month.

Board: Most of the short course students eat at The Commons. This is popularly known as the "Cafeteria." At this place the students pay according to the articles of food ordered. During the last school year the average price of all meals eaten at the cafeteria was a little

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less than fifteen cents a meal. Some of the short course students board at private boarding houses. The cost at these boarding places will range from \$3.50 to \$4.50 a week.

How to Get a Room and Boarding Place: Short course students should plan to arrive in Columbia on Tuesday afternoon, October 31 or early on Wednesday, November 1, 1916 when entering the first term and Sunday afternoon, January 7 or early on Monday, January 8, 1917 when entering the second term. Those who have not been at Columbia before and who are not familiar with the town should go at once to the Y. M. C. A. Building.

On Tuesday and Wednesday at the beginning of the first term and Sunday and Monday at the beginning of the second term all incoming trains will be met by representatives of the Y. M. C. A. They will escort the new students to the Y. M. C. A. Building where they can consult a directory of good rooming and boarding places. Then if it is desired these guides will take them to inspect the rooms and help them get located. Unless they have previous knowledge of a suitable rooming and boarding place students are advised to make no definite arrangements until they have consulted the directory at the Y. M. C. A. Building.

WORKING ONE'S WAY THRU THE SHORT COURSE

Students are advised not to try to work their way thru the short course. The work is so arranged that every student needs all of his time for study and classroom work. The regular price which students receive for outside work is fifteen cents an hour. Any man in the short course can make his time worth vastly more than this by spending it in study. One summer's work on the farm will enable a young man to save enough to pay his expenses in the short course the following winter. Men who desire to take the short course, but who have not the means, are advised to work on a good farm for one year, then come to Columbia prepared to put in full time in study and classroom work. The term is too short and the opportunity too rare to spend any time in outside work.

Moreover, it is difficult for short course students to obtain employment, as most of the best positions are taken by regular students who are on the ground earlier and therefore have the first opportunity at all openings which have any promise of permanency or regularity of employment. The Y. M. C. A. conducts an employment bureau and prospective short course men who must earn at least a part of their way are advised to apply early to this bureau, where some assistance may be given.

RELIGIOUS CONDITIONS AT THE UNIVERSITY

The students of the University of Missouri are a churchgoing class of people. On the average about 72 per cent of all the students

registered in the University are church members and about 18 per cent more have church preferences. A hearty welcome is extended to the short course students by all the churches in Columbia. Special Bible classes are arranged for them. The various young peoples societies especially invite the short course students to attend and take part in their meetings.

The Young Men's Christian Association: In addition to furnishing a list of the available rooms and boarding places the Y. M. C. A. provides in its building a social center for the short course men. The building has club rooms, parlors, reading rooms, swimming pool, bowling alley, and other features attractive to young men.

The association conducts Bible classes and religious meetings. Sunday morning meetings conducted by the Y. M. C. A. have proven one of the most attractive features in the course and have been attended during the last year by every active short course student.

STUDENT ACTIVITIES

Short Course Literary Society: All students taking the Two-Year Winter Course in Agriculture are urged to become members of the Short Course Literary Society. This organization is entirely under the control of short course students, who elect their own officers, make their own rules and regulations, appoint committees and transact the usual business of such a society. Meetings are held every Friday evening at which a program consisting of music, recitations, readings and debates is presented. It furnishes one of the most enjoyable and profitable features of the course and no student should fail to take advantage of the opportunities it offers.

Other Organizations: The short course offers opportunities to become familiar with the work and purposes of the Grange, the Farmers' Union, and numerous other state and local farmers' societies, all of which are open to students of the short course. Many will find it distinctly to their personal advantage to become members of one or more of these organizations.

Live Stock Judging Contest: A live stock judging contest is held at the close of the short course. All the second year men who have had the course in advanced live stock judging are eligible to this contest. Gold medals are awarded to the students ranking as the best judges of horses, beef cattle, dairy cattle, sheep, and hogs. The man who wins a medal in this contest has a valuable and lasting reward for his perseverance and study.

These medals are given by Missouri live stock breeders who are interested in seeing young men trained in better methods of live stock production. Each year the medals are offered by different breeders.

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Last year the medal for the best judge of hogs, given by Isom J. Martin of Brookview Farm, Kahoka, Mo., was won by Harold Whitaker of Cameron, Mo.

The Longview Farm Horse Medal, presented by Longview Farm, Lee's Summit, Mo., was won by Kalo Monsees of Smithton, Mo.

Frank O. Wilson of Nashua, Mo., won the Gill Sheep Medal presented by S. C. Gill of Perry, Mo.

The Model Farms Hereford Medal offered by Overton Harris and Sons of Harris, Mo., for the best judge of beef cattle was won by Frederick I. Brown, of St. Joseph, Mo.

The medal offered by the Missouri State Dairy Association for the best judge of dairy cattle was won by T. B. Boyle of Oakdale, Ill.

W. B. Harrison of Fulton, Mo., in this contest had the best average score and was presented with the beautifully engraved certificate of proficiency annually awarded by the department of animal husbandry.

Grain Judging Contest: At the close of the Two-Year Winter Course in Agriculture each year there is held a grain judging contest in which all second year men are eligible to compete. This contest is prepared with the idea of giving a fitting test to the students' ability as a judge of corn, small grain and seeds and is intended to include several of the important classes of the better county and state fairs.

Gold medals similar in design to those offered in the stock judging contest are offered to the student making the highest average score and to the best judge of corn, soybeans and cowpeas and small grains.

In 1916 Frank H. Stedem of Marshall, Mo., who made the highest average score won the medal offered by Chris Ohlendorf of Boonville, Mo.

Cleat Brooks of Eagleville, Mo., won the medal offered by H. G. Windsor of Boonville, Mo., to the best corn judge.

Clinton S. Heald of Lakenan, Mo., won the medal offered by E. J. Mahoney of Dexter, Mo., to the best judge of small grain.

In 1917 the following growers of pure seeds are offering the medals that will be awarded in this contest: Highest average score, H. G. Windsor, Boonville, Mo.; soybeans and cowpeas, F. L. Read, Sedalia, Mo.; corn, J. F. Roberts, Ray, Mo.; small grain, J. F. Matheny, Miama, Mo.

In addition to the contest, an opportunity is afforded those students who are members of the Missouri Corn Growers' Association to take an examination for certified grain judges. All successful contestants who are members of the Missouri Corn Growers' Association are awarded judges certificates for one, two, three, or five years, depending upon the grade made in the examination.

Short Course Banquet: Each year at the end of the second term the short course students hold a banquet. Practically all the students in the short course attend this banquet. Talks are made by short course men and members of the faculty. This is one of the most en-

joyable events of the year and is looked forward to with anticipation by all, especially those who have attended one before.

MEDICAL ATTENTION FOR STUDENTS

Regularly enrolled short course students have free medical attention and hospital care. In the dispensary at Parker Memorial Hospital students may consult with and have treatment by the members of the staff of the department of clinical medicine and surgery. The attention of the same staff physicians is available to students who have to be admitted to the hospital. Hospital care is rendered without charge except for extraordinary medicines and for special nursing. No charge is made for surgical operations that are considered by the staff as imperatively necessary. Vaccination is required of all students.

For additional information regarding the care of students' health at the University of Missouri consult the annual catalog, page 75. The catalog will be sent free upon application to the Dean of the University Faculty, University of Missouri, Columbia, Mo.

PROTECTING THE HEALTH OF THE STUDENTS

Students in the Two-Year Winter Course in Agriculture are required to take systematic exercise under the direction of an instructor in the department of physical education at least twice a week. The new Stock Judging Pavilion is used at certain hours for this purpose. Shower baths and suitable dressing rooms are provided.

This work is given as a means of safe-guarding the health of the students. Most of the short course students come to the University directly from the farm where they have been working out of doors. A too sudden change from the active outdoor life to the indoor life of the class room is sometimes harmful to the health. By taking a small amount of systematic exercise students retain their health and are enabled to do much better class work. Because of these facts the University has made provision for the gymnasium work in the short course. The amount of time spent in taking this exercise is not enough to cause the studies to be neglected.

Basketball, indoor baseball, and other indoor games are played. Turning bars and other gymnasium apparatus are provided. At the end of each term the short course students hold an athletic carnival.

CERTIFICATE OF GRADUATION

Every student who enters the Two-Year Winter Course should have as an ultimate goal the completion of the four terms. Upon completing the requirements the student is entitled to a certificate of graduation. In order that a student may receive a certificate of graduation from the Two-Year Winter Course he must satisfactorily complete ninety-six units of work. Of this number sixty-nine units are

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prescribed. (See courses of study, p. 20.) The other subjects needed to complete the requirement are selected by the student from the optional courses named in connection with the course of study on pages 20, 21 and 22.

A unit is the equivalent of one classroom exercise a week thruout a term of seven weeks. Thus a class which meets three times a week gives a student three units' credit toward a certificate. A class exercise may be one or two hours in length, depending on the nature of the work.

The requirements for graduation cannot be met unless a student spends two full winters in the course. The four terms need not necessarily be taken in succession, but it is better that they should be. Neither is it necessary that a student should begin work with the beginning of the fall term, but it will be somewhat to his advantage to do so.

There has been a steady increase in the size of the graduating class since 1911 when the first short course certificates were granted to a class of seven men. In 1912 this number increased to thirteen. In 1913 the graduates from the Two Year Winter Course numbered thirty-three. In 1914 forty-three men were granted certificates. In 1915 forty men were graduated, and in 1916 thirty-nine received these certificates.

The value of the Two-Year Winter Course will finally be measured in the main, not by the number of men who begin the course, but by the number who complete the entire course and receive certificates of graduation, for these are the men who receive a well-rounded course.

HOW TO ENTER THE SHORT COURSE

1. If expecting to enter the first term arrive in Columbia not later than Wednesday, November 1, 1916. For the second term arrive in Columbia not later than Monday, January 8, 1917. Classes will begin on Thursday, November 2, at 8 o'clock and on Tuesday, January 9, at the same hour. Those entering late will miss part of the instruction.

2. Upon arriving in Columbia, unless acquainted with the town, go at once to the Y. M. C. A. Building. Trains will be met by representatives of the Y. M. C. A. on October 31 and November 1, 1916, and on January 7 and 8, 1917. Secure a room and boarding place as directed on page 14.

3. After securing a room report for registration at the office of the Superintendent of Short Courses in the Agriculture Building. Registration will begin at 9 o'clock on Wednesday, November 1, 1916, and Monday, January 8, 1917.

4. No student should attempt to register until he has carefully studied the list of courses for the various terms on pages 20, 21 and 22. He should also read the description of each course required for each term and the various optional courses that he may desire to take.

THE COURSE OF STUDY

In each term the student is required to take certain subjects. In addition to those required he is permitted to choose one or more of the optional subjects open to him during that term. The required and optional subjects for each term are listed on pages 20, 21 and 22. In each term the required subjects cover fairly generally the branches of agriculture practiced on Missouri farms. The student may then choose from the optional subjects those relating to the phases of farming in which he is most interested. A student does not have a full course unless he takes all the required subjects and the full number of optional subjects indicated for each term.

Attention is directed to the fact that one may study along five special lines of farming by proper selection of the optional subjects during the four terms of the Two-Year Winter Course. He may train himself for the pure bred live stock business, the pure seed growing business, fruit growing, poultry raising or dairying. The teachers who assist in registration are prepared to advise students in the selection of optional courses.

If a student enters the University, November 1, 1916 for the first time he will take the courses under *First Year, First Term*. If he returns January 8, 1917, he will take the courses under *First Year, Second Term*. If a student cannot enter at the opening of the course on November 1, 1916, he can enter without much inconvenience for the first time, Monday, January 8, 1917. If he enters then he will take the courses listed under *First Year, Second Term*, arranged especially for those who enter then for the first time and outlined on page 21. This is the same course taken by those who entered for the first time at the beginning of the first term except that a course in stock judging adapted to the beginner is given, and the poultry course required of all students in the first term is included.

If he returns for the fall term of 1917 he will then take the *First Year, First Term* courses. Those who have completed both terms of the first year will enter the *Second Year, First Term*.

All the work is thoroly practical. Much of the instruction is given by having students actually do the work under proper direction. The course is being definitely connected up with the Agricultural Extension Service of the University. It is planned to have the student continue his study of agricultural problems on his home farm when he leaves the Short Course. He will do this as a co-operator or demonstrator for the Agricultural Extension Service working under the direction of some of the extension workers.

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FIRST YEAR, FIRST TERM

November 1 to December 21, 1916

(Required)	Periods a week
Cereal Crops and Grain Judging	6
Farm Dairying or Orchard and Garden Management	4
Judging Market Grades and Classes of Live Stock	3
Feeds and Feeding	5
Farm Poultry Management	3
(And at least one of the following optional subjects.)	
Woodworking	3
Forging	3
Fruit Packing	3
Vegetable Gardening	3
Farm Beekeeping	3
House Framing	3
Advanced Forging, 5aw	3

FIRST YEAR, SECOND TERM

January 8th to February 23, 1917

(Required)	Periods a week
Prevention and Treatment of Animal Diseases	4
Farm Dairying or Orchard and Garden Management	4
Judging Types and Breeds of Farm Animals	3
Soil Tillage	3
Animal Breeding	3
Forage Crops	4
(And at least one of the following optional subjects.)	
Woodworking	3
Forging	3
Spraying	3
Dairy Cattle Judging	1
Poultry Judging	3
Beef Production	3
Pork Production	3
Barn Framing	3
Advanced Forging, 6bw	3

SECOND YEAR, FIRST TERM

November 1 to December 21, 1916

(Required)	Periods a week
Injurious and Beneficial Insects	4
Infectious Diseases and Farm Sanitation	3

Farm Accounts	5
Soil Fertility, Manures and Fertilizers	3
(And at least three of the following optional subjects.)	
Fruit Packing	3
Commercial Orchardng	3
Breeds of Live Stock	3
Farm Poultry Practice	3
Farm Construction Methods	4
Horse Production	3
Sheep Production	3
Crop Rotations	3
Rural Economics	3
Advanced Forging, 5aw	3
House Framing	3
Woodworking	3
Forging	3

SECOND YEAR, SECOND TERM

January 8 to February 23, 1917

(Required)

Periods a week

*Propagation of Plants	4
General Farm Management	3
Milk Production	3
Farm Machinery and Engines	4
(And at least three of the following optional subjects.)	
Advanced Grain Judging	3
Advanced Stock Judging	3
Spraying	3
Landscape Gardening	3
Incubation & Brooding Practice	3
Production of Pure-bred Farm Seeds	3
Soil Management	3
Farm Butchering, Cutting, and Curing of Meat	3
Cooperative Banking	3
Dairy Sanitation	3
Woodworking	3
Forging	3
Barn Framing	3
Advanced Forging, 6bw	3

*Orchard and Garden Management required in 1917.

FIRST YEAR, SECOND TERM

January 8 to February 23, 1917

*For those who enter for the first time at the beginning of the
second term*

(Required)

Periods a week

Prevention and Treatment of Animal Diseases	4
Orchard and Garden Management or Farm Dairying	4

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Judging Market Grades and Classes of Live Stock	3
Soil Tillage	3
Animal Breeding	3
Forage Crops	4
Farm Poultry Management	3
(And one of the following optional subjects.)	
Dairy Cattle Judging	1
Woodworking	3
Forging	3
Spraying	3
Barn Framing	3
Advanced Forging, 6bw	3

ANIMAL HUSBANDRY

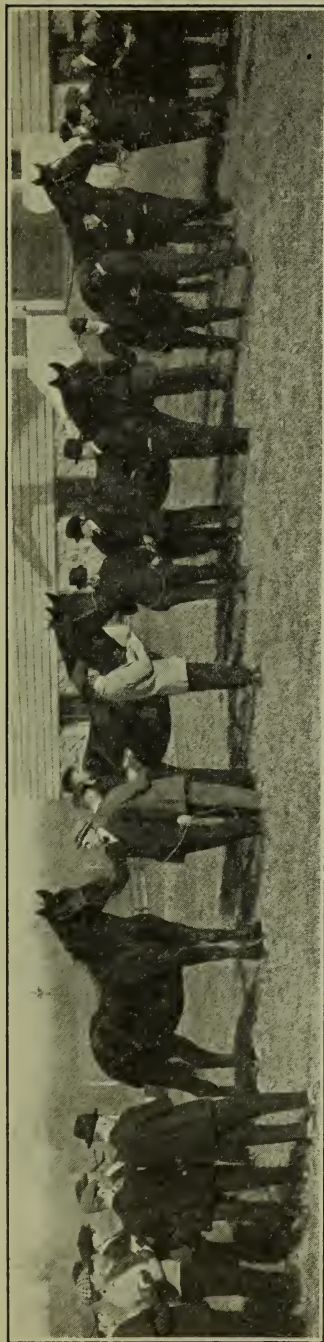
Mr. MUMFORD; Mr. TROWBRIDGE; Mr. ALLISON; Mr. WEAVER; Mr. HACKEDORN; Mr. HUGHES; Mr. BENTLEY; Mr. GRISWOLD.

1aw. Judging Market Classes and Grades of Live Stock. Required in the first term of the first year. The fundamentals of live stock judging are taught in this subject. A study is made of animal form and character, the names and location of parts, indications of feeding quality, constitutional vigor and capacity for production of meat, milk, wool, speed and work with special reference to the market requirements. Both score card work and comparative judging are included. The work covers horses, mules, cattle, sheep and hogs. Three judging periods a week. Text, "Types and Market Classes of Live Stock," by Vaughn.

1bw. Judging Market Classes and Grades of Live Stock. This is a repetition of course law given in the second term for new students and is required. One section.

2aw. Breeds of Live Stock. Optional in the second year, first term. This subject takes up the history, adaptability, feeding qualities and general utility of the leading breeds of live stock produced in this country. Three lectures a week. Text, "Types and Breeds of Farm Animals," by Plumb.

3aw. Feeds and Feeding. The purpose of this subject is to teach the student the fundamental principles of feeding live stock. Feeding standards are carefully studied in order to teach the food requirements of different classes of farm animals. A study is made of the composition, digestibility and relative feeding value of the various hays, grains, mill feeds, and miscellaneous feeding stuffs and students learn how to calculate rations for live stock fed on the farm. The preservation and preparation of coarse fodders and grains by grinding, steaming and cooking, etc., is also taken up. The class is divided into four sections for this course. Required in the first term of the first year. Five periods a week. Text, "Productive Feeding of Farm Animals," by Woll.



Short course students learning the points of good draft horses. The three year olds in the picture were bred and raised at the College of Agriculture.

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4bw. **Animal Breeding.** Required in the second term of the first year. A course in the principles of animal breeding. The course will include a brief survey of the physiology of reproduction and the applications of biology to the practice of animal breeding. Three periods a week.

6bw. **Judging Types and Breeds of Farm Animals.** Open only to first year students who have had course 1aw. Required in the second term of the first year. A study of the breeds of live stock with special attention to breed type and character, and to their relative values for the production of meat, milk, wool, speed and work. This course includes a study of show ring classifications and a detailed consideration of differences between market and breed types. Three judging periods a week. Text, "Live Stock Judging and Selection," by Curtis.

6aw. **Judging Types and Breeds of Farm Animals.** A repetition of course 6bw for students who have entered the second term in the first year and who have had course 1bw. Required in the first term of the first year of the students indicated above. Three judging periods a week.

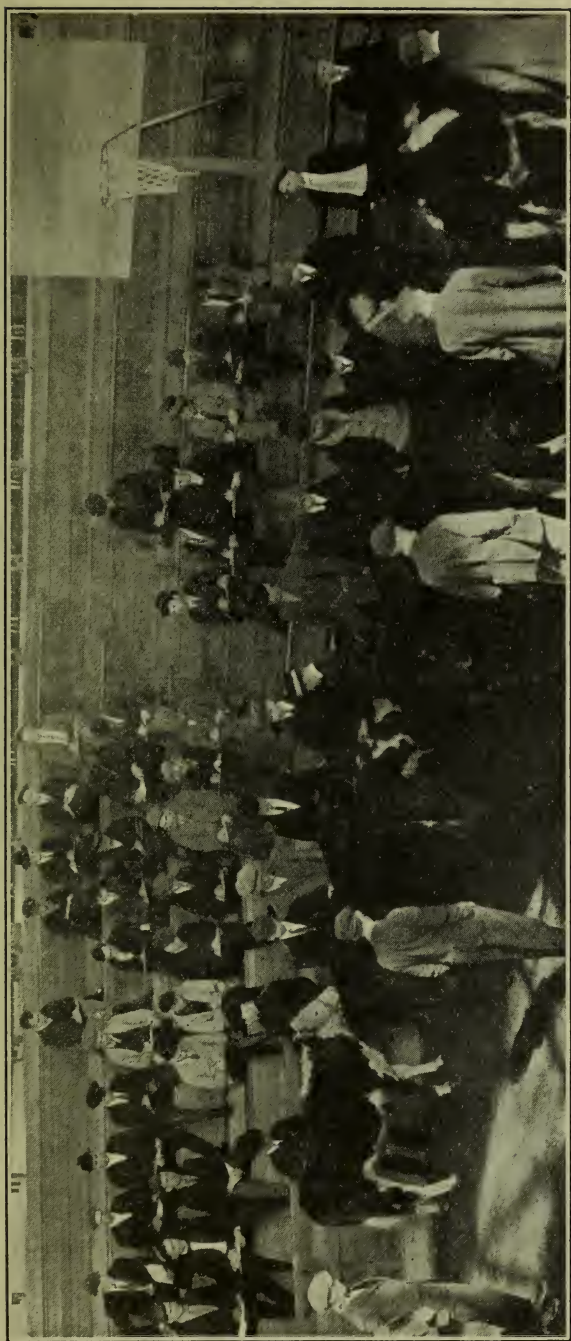
7bw. **Advanced Live Stock Judging.** For second-year students only. Optional in the second term of the second year. This course is a continuation of courses 6aw and 6bw. A study of the various classes of farm animals with particular reference to the breed characteristics and differences. The practical methods of show yard judging; relation of pure bred stock to market classes. The major portion of the work will be comparative judging supplemented with reference reading and illustrated lectures. Optional in the second term of the second year and open only to those who have had courses 1aw and 6bw. Text, "Breeds of Live Stock," by Gay.

No student will be permitted to enter the following courses until he has taken course 3aw, Feeds and Feeding.

8bw. **Beef Production.** Optional in the second term of the first year. This is a discussion of practical methods of beef production. It includes the successful practices in feeding for market, feeding for show, and the general care and management of beef cattle. Three lectures a week. Text, "Feeds and Feeding," by Henry and Morrison.

9bw. **Pork Production.** Optional in the second term of the first year. Approved systems of swine management are studied in this course. A discussion of foodstuffs, with special reference to their adaptability to pork production, the feeding of hogs for market and the feeding and marketing of the commercial and pure bred breeding herd is emphasized. Three lectures a week. Text, "Feeds and Feeding," by Henry and Morrison.

10aw. **Sheep Production.** Optional in the first term of the second year. In this course a study of the various systems of sheep management will be made. The raising of sheep both for mutton and wool will be considered. The production of spring lambs; fattening sheep



The difference between good and bad feeders is studied.

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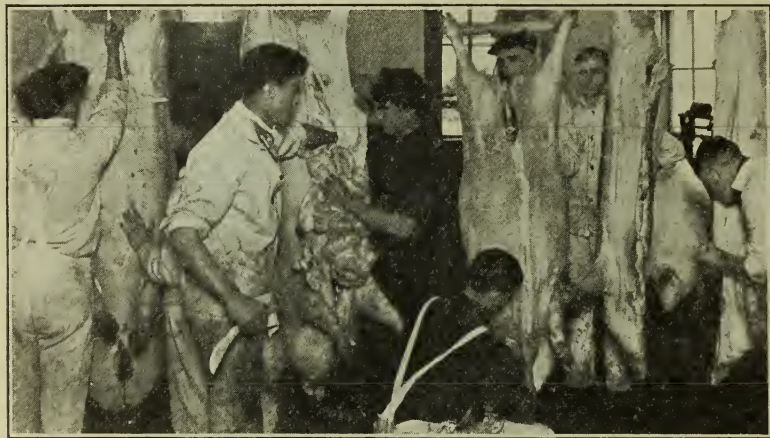
and lambs; and general care and management of the breeding flock will be taken up. Text, "Sheep Management," by Kleinheinz.

1law. **Horse Production.** Optional in the first term of the second year. A discussion of practical methods of horse production including breeding, growing and marketing horses of all classes. This course includes some practical laboratory exercises. Three lectures a week.

BUTCHERING

Mr. P. F. TROWBRIDGE

1bw. **Farm Butchering, Meat Cutting and Curing.** Optional in the second term of the second year. To encourage the home curing



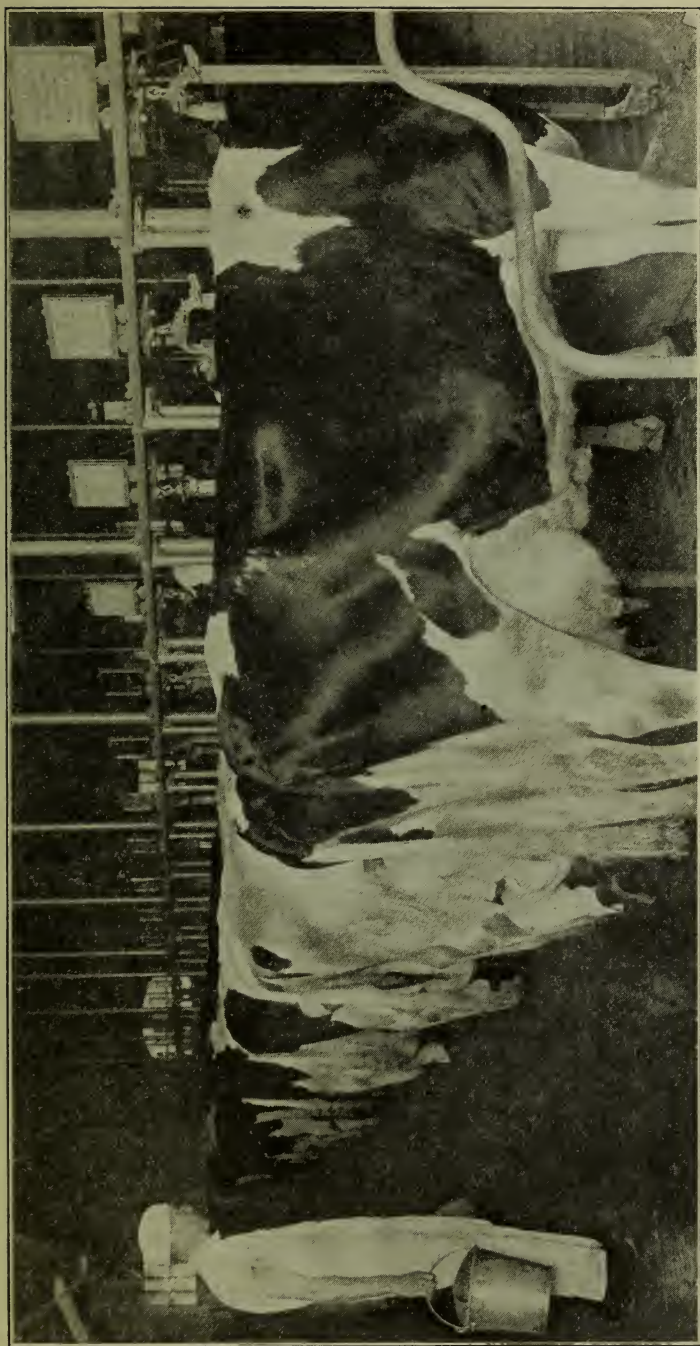
Hogs are killed, dressed, cut up and cured by the students.

of meats this course of instruction is offered. Actual practice in slaughtering beeves, hogs, and sheep under farm conditions is given. This is followed by instruction and practice in cutting up the carcasses, trimming the cuts, and curing the meat. A detailed study is made of the various cuts of a carcass and the relative values of each. The course takes up in some detail the economical disposition of the various cheaper cuts. Three laboratory periods a week.

DAIRY HUSBANDRY

Mr. ECKLES; Mr. RINKLE; Mr. SWETT; Mr. WING; Mr. WERNER; Mr. COMBS.

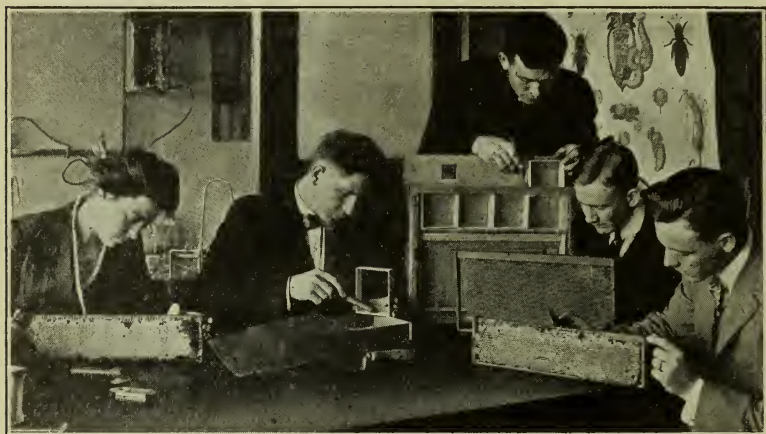
1aw and 1bw. **Farm Dairying.** Required during the first year. This course gives the student such instruction regarding dairy work as will be of value to anyone engaged in farming whether or not he



At milking time in the University dairy barn.

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is especially interested in the production of dairy products for market. The nature, composition and properties of milk are studied, its use as food is discussed and the separation of cream and butter making under farm conditions is given some attention. The testing of cream and milk for butter fat, how to test individual cows and how to properly handle milk and cream are given particular attention. Open to students in the Short Course in Home Economics. Two lectures and two laboratory periods a week. Students taking this course must pro-



Fifteen stands of bees are maintained by the College and used in teaching bee-keeping

vide themselves with white overalls and jumper to protect their clothing.

2bw. Milk Production. Required in the second term of the second year. Practical instruction regarding the dairy cow on the farm, including adaptation of breeds for various purposes, the selection of individual cows by type and by records, and keeping milk and butter fat records are features of this course. Selecting the bull, raising calves, feeding cows, general care and management of the herd are given special emphasis. The large herd of dairy cattle belonging to the University and other nearby dairy herds are used in demonstrating and illustrating this course. Three lectures a week. Text, "Dairy Cattle and Milk Production." by Eckles.

3aw. Farm Buttermaking. Instruction in the composition and properties of milk, its uses as food, milk and cream testing, care and handling of milk and cream under farm conditions, the principles and practices of buttermaking on the farm, the marketing of farm butter and the making of a farm type of cheese, are the features of this

course. This course is for students taking the Short Course in Home Economics. One lecture and one laboratory period a week.

4bw. **Dairy Cattle Judging.** The points in the form and appearance of the dairy cow that have a bearing upon her ability to produce milk are studied in this course. The high producing cows in the University of Missouri dairy herd are used. Several herds of high producing dairy cows near Columbia are also available. This course is primarily for the students taking the Special Creamerymen's Course but a limited number of others will be admitted. Optional in the second term of the first year. One judging period a week.

5bw. **Dairy Sanitation.** This course is designed for all who handle milk or cream in any way. Attention is given to the sanitary production of milk and cream for the market, and its proper care at the creamery. The relation of quality of cream and method of handling to the quality of butter is thoroly covered. Special attention is given to the problems of the market milk producer and distributor, including the relation of dairy products to human health. Pasteurization, ripening of cream, making of starters and the causes of variations in flavor of butter are discussed. Two lectures and one laboratory period a week. Optional in the second term of the second year.

ENTOMOLOGY

Mr. HASEMAN; Mr. HOLLINGER.

1aw. **Injurious and Beneficial Insects.** Required in the first term of the second year. This course trains the student to recognize the various injurious insects, how to prevent their development and how to destroy them. Some attention is given the chinch bug, Hessian fly, army worm, codling moths and San Jose scale. A general discussion is given of the life history, transformation, appearance, nature of injury produced and best methods of control of the principal pests injuring farm crops. Actual specimens of the pests are studied so that the student can easily recognize them. Three lectures and one laboratory period a week.

2aw. **Farm Beekeeping.** Optional during the first term of the first year. This course includes two lectures and one period of laboratory or field work a week. It is intended to train the students to properly handle and care for a few stands of bees on the farm. Along with the practical work a complete discussion of the more technical phases of bee-keeping will be given and the students will be required to secure a text book on bee-keeping for use as a reference text. An apiary is maintained for use in connection with the course.

FARM CROPS

Mr. ETHERIDGE; Mr. HACKLEMAN; Mr. McDONALD; Mr. HELM; Mr. EVANS.

1aw. **Cereal Crops and Grain Judging.** Required in the first term of the first year. This course has to do with the principles concerned

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in the production of corn, oats, wheat, rye, barley, and other grain crops. The methods of preparing the seed bed, planting, cultivating, and harvesting these crops are considered in detail, together with methods of crop improvement. The laboratory work has to do with a study of the various types and important varieties of these crops, and the judging and grading of commercial grain. Three lecture and three laboratory periods a week. Text, "Field Crop Production," by Livingston.

2bw. **Forage Crops.** The production of clovers, cowpeas, soybeans, alfalfa, rape, sorghums, grasses, and other forage crops is studied in this course. Special attention is given the management of



These students are studying the various steps in the development of seeds into plants

these crops and their use in cropping systems adapted to Missouri farms. Laboratory exercises consist of the study and testing of seeds. Required in the second term of the first year. Three lectures and one laboratory period a week. Text, "Field Crop Production," by Livingston.

3bw. **Advanced Grain Judging.** Optional in the second term of the second year for second year men only. A continuation of the laboratory work of course 1aw. Its purpose is primarily to prepare students to become grain judges. Only fourth-term students are admitted to it. A grain judging contest is held in connection with this course and medals and certificates awarded the best judges of grain. Three laboratory periods a week.

4aw. Crop Rotations. Optional in the first term of the second year for only those who have had courses 1aw and 2bw. A study of the principles underlying the practice of crop rotations with special reference to the effect of rotations on the maintenance of crop yields, together with a discussion of those factors to be considered in planning rotations for the home farms. Three lectures a week.

5bw. Production of Pure Bred Farm Seeds. Optional in the second term of the second year for only those who have had courses in 1aw and 2bw. A study of principles and practices of plant improvement as applied to the production of pure bred farm seeds. Methods of conducting corn breeding plots and the growing, handling and marketing of pure bred corn and other grains and seeds are considered. Three lectures a week.

FARM MANAGEMENT

Mr. JOHNSON; Mr. GREEN.

1bw. General Farm Management. Required in the second term of the second year. How to make a practical working plan of the home farm is the object of this course. Each student makes a map of his home farm, and with this as a basis replans the practical farm operations. He considers the profitable outcome and the maintenance or increase of soil fertility as the main object. A crop rotation, the best methods for handling the crops used in this rotation, and the profitable utilization of these crops by stock will be planned. The amount of stock that can be kept under the plan will be worked out in detail. Three lectures a week. Text, "Farm Management," by Warren.

2aw. Farm Accounts. Required in the first term of the second year. It is arranged to make, first of all, a thoro study of taking inventories and keeping financial records. More time is devoted to this than any other phase of accounting because it is more important. Labor, feeding, and dairy records are also studied. Monthly statements and annual summaries of a farm business are made. Five lectures a week. Each student is required to purchase a farm record ledger and an inventory blank.

FARM MECHANICS

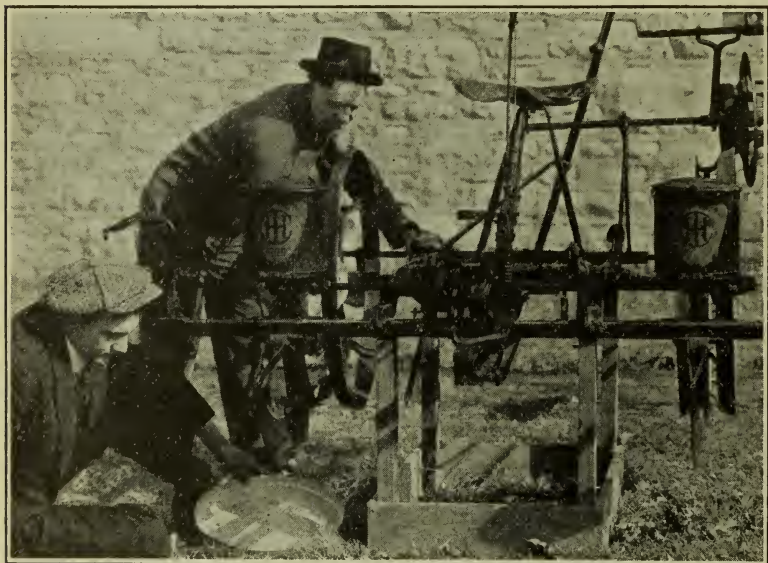
Mr. LEHMANN.

1aw. Farm Construction Methods. Optional in the first term of the second year. The students actually build concrete walks, water troughs, fence posts and sections of foundations. They are taught how to mix and handle concrete with special reference to the proper methods of reinforcing. Two lectures and two laboratory periods a week.

2bw. Farm Machinery and Engines. Required in the second term of the second year. This course has to do with the construction and handling of farm machines and the adaptation of various forms of power

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to the conditions on the average farm. Practical exercises and demonstrations with various farm machines in the machinery laboratory of the University form a large part of the work in this course. Students will be given a working knowledge of the operation of gasoline engines for farm use. This course is primarily for second year men altho a limited number of first-year men will be admitted. Two lectures and two laboratory periods a week. Text, "Agricultural Engineering," by Davidson.



Short Course men never take a corn planter in the field until they have it properly regulated

Each student who takes the above courses should have a suit of overalls to wear while in class.

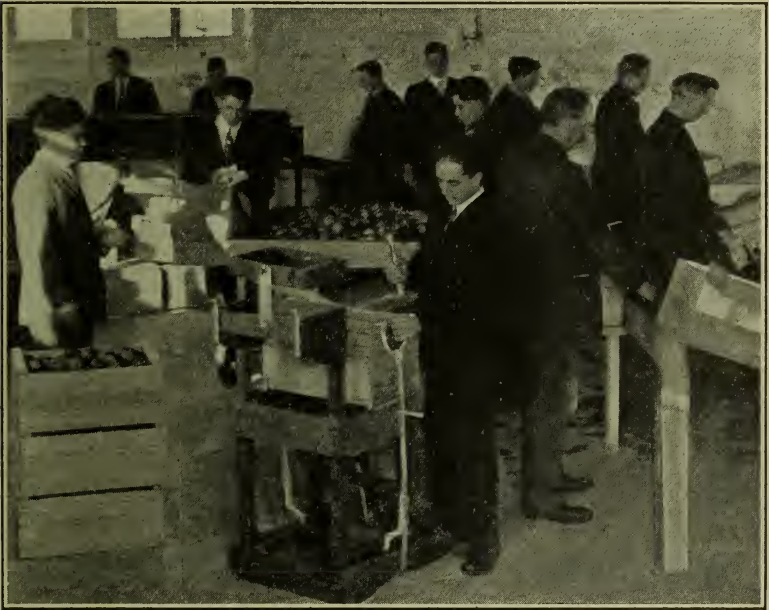
HORTICULTURE

Mr. WHITTEN, Mr. LAWRENCE, Mr. MAJOR, Mr. WIGGANS, Mr. GARDNER.

1aw. **Farm Orchard and Garden Management.** Required in the first year. It is the purpose of this course to suggest plans for a home garden, including the varieties best adapted to our use. The preparation of the soil for planting, the selection, trimming, planting, pruning and care of fruit trees and small fruits is studied. Seasonal and soil requirements of the varieties of vegetables most useful on the farm, together with detailed instructions concerning the planting of

seeds, are included. Students are taught how to store fruits and vegetables, and how to protect the plants against bacteria, fungi, and insect pests thru proper culture, fumigation, and spraying. Two lectures and two laboratory periods a week. Text, "Popular Fruit Growing," by Green.

2bw. Propagation of Plants. Required in the second term of the second year. The purposes of this course are to give a general knowledge of development, structure and uses of the parts utilized in the



Short Course students learning how to pack apples so as to compete for the top prices on the open market.

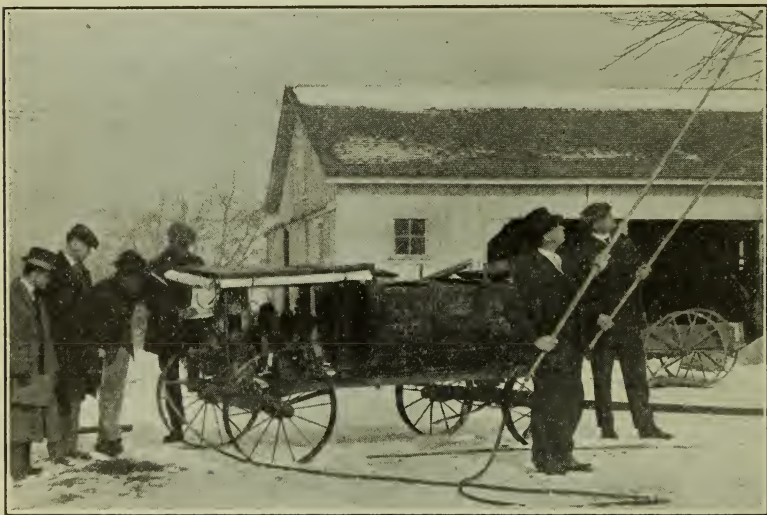
propagation of plants. The practical methods of growing better seed thru the selection and improvement of the best seed plants, methods and practices of harvesting, storing, and testing seeds are studied. The planting of seeds, the transplanting of vegetables, the preparation and care of cuttings, budding and grafting is included. A working knowledge is given of the common and more useful methods employed in the increase of plants by use of bulbs, corms, tubers, runners, offshoots, and other organs of reproduction. Two lectures and two laboratory periods a week.

3bw. Landscape Gardening. Optional in the second term of the second year. How to decorate the farm home grounds with the common trees,

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shrubs and flowering plants is the object of this course. Methods of making lawns are taught as well as what plants to grow on the lawn. The management of the decorative plants and flowers and how to prune the shade and ornamental trees are features of the work. Three lectures a week.

4aw. **Commercial Orchardring.** Detailed instruction is given on the selection of the soil and site for the orchard. The location with reference to shipping facilities, centers of distribution and consumption and methods of securing satisfactory prices for the fruit are studied. Orchard practice in the selection and arrangement of varieties, spray-



Spraying fruit trees in the orchard. Different types of power and hand sprayers are studied.

ing, and harvesting at the lowest possible cost together with sorting, packing and storage and the handling of the fruit from the time of picking to delivery to the distributor are features of this course. The course is specially adapted to the needs of those who are in the business of growing fruit for sale. Optional in first term of the second year. Three lectures a week.

5aw. **Vegetable Gardening.** This course includes instruction and readings in the efficient management of an all-summer garden, to supply vegetables for the home as well as for local market. It includes the construction and management of hotbeds and cold-frames, the use of manure for the garden, and the farm storage of vegetables for winter use. Optional in the first term of the first year, and open to students in the Short Course in Home Economics.

6aw. **Fruit Packing.** It is the purpose of this course to give the student the experience and working knowledge of the methods of packing fruit in boxes, barrels and other containers that will lengthen the life of fruit in storage making it possible to economically distribute it. Three laboratory periods a week. Optional in the first term of either year and attendance limited to twenty.

7bw. **Spraying.** The student is taught how to prepare and apply the sprays that will destroy insect pests and prevent plants from becoming diseased. Three laboratory periods a week. Optional in the second term of either year and attendance limited to twenty.

POULTRY HUSBANDRY

Mr. KEMPSTER; Mr. HERVEY.

1aw. **Farm Poultry Management.** Required in the first term of the first year. This course teaches how to make more money out of the poultry on the farm, how to hatch and raise poultry, feed for egg production and handle the stock for market. Instruction is given in the most economical ways of killing and dressing for the market. The housing of chickens on the farm and methods of treating the common diseases are also discussed. Three lectures a week.

1bw. **Farm Poultry Management.** A repetition of course 1aw for those who enter for the first time at the beginning of the second term.

Course 1aw or 1bw is required before any of the courses described below can be taken.

2aw. **Farm Poultry Practice.** Optional in the first term of the second year. For those students who are more particularly interested in farm poultry raising this course is offered. It goes more into the detail of the operations around the poultry house such as killing and dressing, making and applying louse powder, building coops, etc. The student is taught the every day practices of a person engaged in handling poultry. One lecture and two laboratory periods a week. Text, "Poultry Production," by Lippincott.

3bw. **Poultry Judging.** Open only to those who have had course 1aw. How to judge poultry is taught in this course. The conformation and breed characteristics of chickens are discussed from the standpoint of the poultry show and the production pen. In this course considerable attention is given to the principles of poultry breeding. Optional in the second term of the first year. One lecture and two laboratory periods a week. Text, "American Standard of Perfection."

4bw. **Incubating and Brooding Practice.** Optional in the second term of the second year. This is a practice course in the hatching and raising of chickens. A critical study of incubators and brooders is made. Class is limited to twelve students. One lecture and two laboratory periods a week.

RURAL ECONOMICS

Mr. GROMER.

1aw. **Principles of Rural Economics.** Optional in the first term of the second year. Our governmental and commercial policies are framed to a great extent in the interest of the industries of the town and city. We have only recently awakened to the fact that the rural problem is our most important problem. Very few active farmers are members of Congress. The farmer has left the passing of laws and the shaping of governmental policies to others who know little of his needs. The problem of living in the country has been too much neglected.

It is the purpose of this course to direct attention to some of the most important features of these problems, how they may be partially corrected and also discuss some of the principles of economics in their application to agriculture. Three lectures a week.

2bw. **Co-operative Banking.** Optional in the second term of the second year. Must be preceded by course 1aw, principles of rural economics. The farmers in Missouri being for the most part unorganized and the price of what they purchase not standardized, in general they are able to command only such advantageous prices as their knowledge and influence enables them to secure. Partly because of these conditions it is generally understood that they make only about half the rate of interest on their investments that they have to pay when borrowing capital. It is the intention of this course to explain how this condition of affairs may be at least partly remedied, and in addition to treat of some of the most fundamental principles of banking. Three lectures a week.

SOILS

Mr. MILLER; Mr. HUDELSON; Mr. ALBRECHT; Mr. DULEY.

1bw. **Soil Tillage.** Required in the second term of the first year. In this course the student learns the best methods of tilling and cultivating the soil. The laws of physics that affect the handling of soils are studied and illustrated by laboratory and field practice. The methods of controlling the moisture in the soil are given special emphasis. How to prepare the seed bed, eradicate weeds, and maintain good tilth are other features of the work. Two lectures and one laboratory period a week.

2aw. **Soil Fertility, Manures, and Fertilizers.** Required in the first term of the second year. This course includes a discussion of soil fertility and the methods of maintaining the productivity of soils. The relation of various crops to soil exhaustion and to soil improvement is considered and the methods of handling manures and fertilizers are given particular attention. The course is designed to bring out the principles of soil handling and fertilizing in order to maintain the

highest state of productiveness. The results of experiments on various fields being conducted by the Missouri Agricultural Experiment Station at Columbia and in different parts of Missouri are of great service in indicating the proper treatment for the different soil types of the state. Practice in mixing fertilizers and in making simple tests of soils will be a feature of this course. Two lectures and one laboratory period a week.

3bw. Soil Management. Optional in the second term of the second year. After having been thoroly drilled in the principles laid down in the course on soil tillage and fertility, if he desires the student can take this course. It is primarily devoted to the practical application of the principles studied in the courses mentioned above. The work includes a detailed discussion of the handling of lands from the standpoint of seed bed preparation and tillage and more particularly the use of lime, fertilizers and manures as related to the various systems of soil management practiced in Missouri. Three lectures a week.

SHOP WORK

Mr. GRIFFITH.

1aw and 1bw. Woodwork. Optional in both terms, either year. Students are taught the use and care of woodworking tools in the making of useful things. This is a course for beginners. Three laboratory periods a week. Text, "Essentials of Woodworking," by Griffith.

2aw and 2bw. Forging. Optional in both terms, either year. This course includes instruction and practice in welding, bending, forming and drawing iron, and tempering steel. A course for beginners. After successfully completing this course students should be able to do simple repair work with a portable forge such as can be used on the average farm. Three laboratory periods a week. Text, "Forge Work," by Ilgen.

3aw. House Framing. Optional in the first term. Study of principles and practice in house framing such as may be of use on the farm. Class limited to twenty students and open only to students who have had course 1aw or 1bw or a good high school manual training course in woodwork. Three laboratory periods a week.

4bw. Barn Framing. Optional the second term. Study of principles, with practice, in framing the plank barn. Class limited to twenty students and open only to those who have had course 1aw or 1bw or a good high school manual training course in woodwork. Three laboratory periods a week.

5aw. Advanced Forging. Optional in the first term. For those students who desire to get more practice in iron work this course is offered. Special attention is given to tempering steel and making welds. Practice in making and tempering tools such as the cold chisel,

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ironing singletrees, doubletree, neckyoke, etc. Class limited to twenty students and open only to those who have had course 2aw or 2bw or the equivalent. Three laboratory periods a week.

6bw. **Advanced Forging.** Optional in the second term. Practical work in plow sharpening and tire setting. Demonstration and instruction in horse shoeing. Class limited to twenty students and open only to those who have had course 2aw or 2bw. Three laboratory periods a week.

Each student who takes the above courses should have a suit of overalls to wear while in class.

VETERINARY SCIENCE

Mr. CONNAWAY; Mr. BACKUS; Mr. GINGERY; Mr. DURANT; Mr. RIDGEWAY.

1bw. **Prevention and Treatment of Animal Diseases.** Required in the second term of the first year. This course is designed to meet the needs of the average stockman in preventing disease and rendering first aid to animals in accident and disease. It is comprised of 14 lectures and 14 laboratory periods. Lectures are given on common causes of diseases, action and use of disinfectants, care of sick animals, treatment of wounds, colics, dehorning, castration and other subjects of similar interest and importance.

Laboratory exercises take up a study of the structure and function of the various organs, the control of animals, casting and various methods of restraint, application of bandages, how to administer medicines, disease producing bacteria, how to make a post mortem examination, how to vaccinate against blackleg, examination for soundness, etc. As far as possible the student is given opportunity to do the work given in the laboratory. Whenever possible clinical cases will be used for demonstration.

2aw. **Infectious Diseases and Farm Sanitation.** Required in the first term of the second year. The following subjects are considered: blackleg, tuberculosis, contagious abortion, actinomycosis (lump jaw), anthrax, rabies, roup of chickens. The student is taught how to make post mortem examinations and how infectious diseases are spread and how controlled. Two lectures and one laboratory period a week, supplemented by preserved specimens, lantern slides and demonstrations.

COURSE IN DAIRY MANUFACTURES

This course takes up the fundamental principles involved in the manufacture of creamery butter, ice cream and other products such as cottage cheese and cultured milk. The object of the course is to

assist those who desire to prepare themselves for work in creameries, ice cream factories or city milk plants. It also fits a student for the successful operation of large private dairies where the manufacture of dairy products is an important feature. The demand for capable well trained men along these lines exceeds the supply. The course begins January 8 and ends February 23, 1917. Each student who enters this course must pay the usual library, hospital and incidental fee of \$6. The laboratory fee for the course complete is \$6.

OUTLINE OF THE COURSE

	Lectures	Laboratory periods
Elements of dairying	14	14
Milk production	21	0
Testing dairy products	0	21
Creamery buttermaking	14	21
Ice cream making	14	14
Creamery calculation	14	0
Dairy sanitation	14	7
Dairy mechanics	14	0
Dairy cattle judging	0	7
Inspection trips		

The subjects in this course are described in detail below:

DESCRIPTION OF COURSE

1bw. **Farm Dairying.** Described on page 26, Mr. RINKLE.

2bw. **Milk Production.** Described on page 28, Mr. ECKLES.

4bw. **Dairy Cattle Judging.** Described on page 29, Mr. WING.

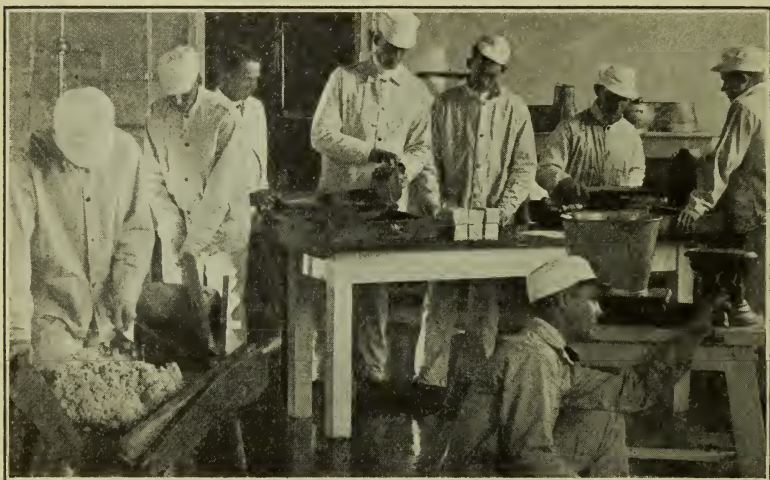
5bw. **Dairy Sanitation.** Described on page 29, Mr. ECKLES, Mr. WERNER.

6bw. **Creamery Buttermaking.** The receiving, weighing, sampling, grading, testing and caring for cream under factory conditions is given in this course. The pasteurization of cream, starter making, ripening and churning of cream are practiced by each student in the laboratory. Packing, printing and wrapping and analyzing butter is also given. 14 lectures are given in this subject and students are allowed to work in the creamery as they would be required to under factory conditions. The manufacture of certain creamery by-products is also taken up. Mr. RINKLE, Mr. COMBS.

7bw. **Testing Dairy Products.** In this course the student learns the proper methods of testing milk and cream by the Babcock method. Methods of properly taking and preserving samples are taught. The various methods of testing butter for the moisture and salt content, the proper use of the acid test and various other tests that are applied to creamery practice are taken up. Mr. RINKLE, Mr. COMBS.

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8bw. Ice Cream Making. More attention is given each year to instruction in this subject because of the rapid development of this industry. Facilities are at hand to give good instruction along this line. Ice cream is made regularly and supplied to The Commons. Lectures are given explaining the principles and proper methods to be followed in making the best product and the student has opportunity by actual experience to learn how the work is done. Brick ice cream, sherbets, ices, frozen puddings, etc., are made by the students in this course. Mr. RINKLE, Mr. COMBS.



Many former students are making money out of the training they received in buttermaking

9bw. Creamery Arithmetic. Fourteen periods are devoted to this subject. Problem such as the standardization of cream, checking up on creamery overrun, determination of the heating and cooling surface on different cream ripeners, figuring speeds of shafting, etc., are some of the problems taken up. Mr. RINKLE.

10bw. Dairy Mechanics. This is a study of the management, care and operation of dairy machinery, including engines and refrigeration plants. A brief study is made of the more simple power transmission problems. Two lectures a week. Mr. LEHMANN.

Inspection Trips. Several trips will be made to up-to-date dairies in and about Columbia with a visit to Columbia's leading milk distributing plant and ice cream factory. These places are within easy walking distance of the dairy building and will take but a few hours. One trip will be taken to some up-to-date creamery and ice cream plant in this state. This trip will require about one day and a half. Students should come provided with \$5 to make this trip. It is required of all students in this special course. Mr. RINKLE.

SHORT COURSE IN HOME ECONOMICS FOR WOMEN

The home is the most important factor in farm life. The problem of how to keep the boy on the farm is exceeded in importance only by one other and that is: how to keep the girl in the home. Thinking men everywhere have agreed that the solution of the problem so far as the boy is concerned lies in training him to be a skillful farmer, and in showing him that there is more to farming than mere manual labor.

Surely the girl should be given at least an equal opportunity to learn of the new ideas in the management of home affairs. The waste of material things in the home and still more important the waste of time, strength, and energy, is generally the result of not knowing how to make the best of the resources at hand. It is for the purpose of securing a more economical administration of household affairs in these different lines that the course is offered.

PLAN OF THE COURSE

The Short Course for Women lasts for seven weeks. It begins November 1, 1916, and ends December 21, 1916. Work is given in those subjects with which a woman as a home maker should be familiar. Economy in the management of household affairs is the key note of the whole course. The student learns how to save materials, time, and labor. By means of lectures she is taught why certain things and certain methods are better than others. Then, by actually doing the work in the various laboratories, she applies the knowledge gained in the lecture room to practical cooking, sewing, millinery, butter making, etc. It is a practical course which trains the hand as well as the intellect. It offers the kind of knowledge which a woman can apply in her every-day housework and her every-day relations to the farm.

Students are given an opportunity to choose the special studies in which they are most interested. The department of home economics offers studies arranged specially for the Short Course for Women. Students may select one or any number of these subjects. In addition all the studies in the Two-Year Winter Course in Agriculture are open to women students. The courses in farm buttermaking, poultry raising, fruit growing, and home gardening are especially recommended. It is expected that women students will choose part of their studies in home economics and part in agriculture.

WHO MAY ATTEND

Any woman more than 16 years old may attend. Older women who have had the care and responsibility of managing a house will find much that will interest them and on account of their experience will be able to derive even greater benefit from the course than girls who are less experienced. It is desirable that all students should have at least a common school education, but an earnest and sincere purpose is considered above other prerequisites. There are no entrance examinations.

FEES AND EXPENSES

There is no charge for tuition, but each student pays an incidental fee of \$6 for the term of seven weeks. The following laboratory fees are required. Preparation of food, \$2.50; planning and preparation of meals, \$2.50; canning and preserving, \$1; sewing, 50 cents; millinery, 50 cents; dressmaking, 50 cents.

Rooms may be secured in Columbia at prices ranging from \$8 to \$14 a month. Where two persons occupy the same room, each pays one-half of the above sum. The price paid depends upon the size of the room and its conveniences. Board may be had at prices varying from \$3.50 to \$4.50 a week.

A conservative estimate of the expenses while in Columbia is:

Fees	\$ 9.50
Room (with roommate)	10.00
Board	30.00
Books	3.50
Laundry	4.00
<hr/>	
Total	\$57.00

WHAT TO BRING

The landladies furnish bed linen and covers, but each student is expected to bring her own towels. An extra blanket will usually be acceptable. For the course in preparation of food at least two plain white aprons will be needed. These should be plainly made, buttoning rather than tying at the belt. All equipment for the sewing and millinery classes will be furnished by the University. The material for the suit of underwear and simple dress which will be made in the sewing class may be brought along or purchased here. A long-sleeved gingham apron should be brought.

WHEN YOU GET HERE

All students who expect to enter the Short Course for Women should write to the Department of Home Economics, Gordon Hotel

Building, Columbia, Missouri, several days in advance stating just when they will arrive. Those who make these arrangements will be met by members of the Home Economics Club or of the Y. W. C. A. In case no such arrangements have been made previous to arriving in Columbia, new students should go direct to the Gordon Hotel Building.

Students should plan to reach Columbia on Wednesday, November 1, 1916. Classes will begin promptly on Thursday, November 2. The offices of the University are not open on Sunday. Students who come in on that day will have some difficulty in locating desirable and convenient rooming and boarding places. Each student in the Short Course for Women will receive the personal attention of some member of the faculty or of the Home Economics Club or Y. W. C. A. in the selection of her rooming and boarding place if she desires. Every effort should be made to reach here early enough on Monday to complete the registration and get permanently located in order to attend classes on Thursday morning.

DESCRIPTION OF COURSES

MISS STANLEY, MISS KNEELAND, MISS RONZONE, MISS FINDLEY, MISS DOBBS, DR. RAVENEL.

1w. Preparation of Food. The student studies the composition of food and the methods of preparation. This course aims to make the student independent of the recipe by teaching general combining proportions and the principles underlying the preparation of various typical dishes. In it a careful study of sugar, fruits, starch, vegetables, milk, eggs, cheese, and salads will be made. Five times a week.

2w. Preparation of Food, 2. A continuation of course 1w. Study of the preparation of meats, meat substitutes, gelatin desserts, batters and doughs. This course must be preceded or accompanied by 1w. Five times a week.

3w. Planning and Preparation of Meals. Must be preceded or accompanied by course 1w and 2w. This course will consider the planning of a well-balanced meal and its systematic preparation. Its purpose is to give practice in home cooking. It will include the study of the food needed for one person each day, and its proper division among the meals of the day. These meals will be planned at various costs, prepared and served. Special attention will be given to the planning and preparation of breakfasts and lunches. Three times a week.

4w. Planning and Preparation of Meals, 2. Must be preceded or accompanied by courses 1w, 2w, and 3w. This course is a continuation of course 1w, the special emphasis being placed on the planning and preparation of dinners and more elaborate meals. Three times a week.

5w. Canning and Preserving. In this course the students are thoroly trained in the methods of successfully canning foods. A study is made of the causes of the spoiling of food and best methods of

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preservation. The many possibilities for increasing the food supply of the home and reducing the cost of living thereby will be carefully considered. As much time as possible will be spent in practical work. Twice a week. Hours to be arranged.

6w. **Sewing.** This course makes it possible for the student to plan her own underwear, to draft patterns for or adjust a ready-made pattern, and to cut, fit, make, and finish garments. Enough handwork is given to enable the student to finish neatly the garments made, and to keep all clothes in repair. The comparative cost of different grades of material and methods of making are considered. Three times a week.

7w. **The Dress Problem.** The selection of materials and the design for a simple wash dress, an underskirt, and a hat, and the making of these are the features of this course. A comparison will be made of the cost of ready-made dresses and those made at home. Some time will be spent on mending and daily care of clothing. The cost of the necessary clothing will be estimated. Three times a week.

8w. **Dressmaking.** Courses 6w and 7w or their equivalent should be taken before this course. In this course a wool dress will be planned and made. Special attention will be paid to the application of design to dressmaking. This course is for those who attend the Short Course a second time. Three times a week.

9w. **Preventive Medicine.** In this course the aim is to give the general rules of public health and personal hygiene with the idea of enabling the students to guard against disease and increase their health. Two times a week.

10w. **Home Care of the Sick.** Considering first the care of the patient, the topics discussed will be: Choice and preparation of the sick room, care of the patient, bathing the patient, making the patient's bed, and the importance of carrying out the doctor's orders implicitly. Next, as so many diseases are transmissible, the prevention of further contagion will be considered, isolation of patient, disinfection of anything removed from room, and care of room after the recovery of the patient. Special attention will be given to the care of the patient during certain more common diseases, such as tuberculosis, typhoid and pneumonia, in which the nursing is such an important factor. Two times a week.

11w. **Art in Every Day Life.** The study of a few of the basic principles of art and design and their application to every day life. Two times a week.

1aw. **Farm Poultry Management.** Described on page 35.

1aw. **Farm Dairying.** Described on page 27.

5aw. **Vegetable Gardening.** Described on page 34.

3aw. **Farm Buttermaking.** Described on page 28.

THE FARMERS' SHORT COURSE

In January each year the College of Agriculture offers a short course in agriculture for farmers in connection with the Farmers' Week program arranged in co-operation with the State Board of Agriculture. In this course special lectures and demonstrations in soils, farm crops, animal husbandry, dairying, horticulture, farm management, forestry, rural economics, veterinary science, and poultry farming are given in the classrooms, laboratories, and live stock pavilion belonging to the University. Two thousand and eleven farmers were enrolled for this course in 1916. The course will be given again in January, 1917.

For further information concerning the short winter courses in agriculture write to

P. M. BRANDT,
Superintendent of short courses,
University of Missouri,
Columbia, Mo.

FOUR-YEAR CURRICULA IN AGRICULTURE

Students who have had the equivalent of a four-year high school training are advised to enter one of the regular four-year curricula in agriculture or curriculum in forestry, rather than the short course. The opportunities for graduates of the longer courses are unlimited. The college has not been able to supply the demand for farm managers, teachers in agricultural schools, investigators in experiment stations, scientific aids in the United States Department of Agriculture, foresters, farmers' institute lecturers, and agricultural journalists.

One of the recognized functions of the College of Agriculture in its long courses is to train for actual farm work. The University of Missouri believes that any one who is to manage a good Missouri farm is entitled to the same high grade of instruction as is the lawyer, the physician, the preacher, or the teacher. Every important phase of farming is given careful attention—stock raising, fruit growing, grain farming, dairying, poultry raising, drainage, crop rotation, and business management.

Fifteen units, the equivalent of four-year high school course, are required for admission to the regular curricula in agriculture and forestry. A unit is the equivalent of a high school subject pursued five periods a week for at least thirty-six weeks.

Applicants for admission who are deficient in a small portion of the requirements may be admitted conditionally at the discretion of the dean of the University faculty.

Mature men and women may be admitted to the College of Agriculture for special study in such subjects as they are prepared to pursue

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with profit to themselves. Such students must be at least 21 years old. Special students are not candidates for degrees and cannot become such until they have fulfilled all requirements for admission. Entrance cards for special students are issued by the dean of the University faculty, to whom applications for admission should be sent.

For further information concerning the four-year course in agriculture write to

F. B. MUMFORD,
Dean, Faculty of Agriculture,
College of Agriculture,
Columbia, Missouri.

SCHEDULE OF COURSES

This schedule shows the time and place at which each class in the Two-Year Winter Course will be held. Changes if necessary will be announced at the proper time. The buildings are indicated by abbreviation as follows:

Agr.—Agriculture	M. A.—Manual Arts
G. H. B.—Gordon Hotel Building	Phys.—Physics
Hort.—Horticulture	Poul.—Poultry
L. S. P.—Live Stock Pavilion	Sch.—Schweitzer
Mach.—Machinery Hall	Vet.—Veterinary

Course	Section	Lecture	Laboratory	Room	Card No.
Animal Husbandry					
1aw Judging Market Classes and Grades of Live Stock	I		10-12 MWF	L.S.P.	200
	II		10-12 TThS	L.S.P.	201
	III		1- 3 MWF	L.S.P.	202
1bw Judging Market Classes and Grades of Live Stock			10-12 TThS	L.S.P.	203
2aw Breeds of Live Stock		3 MWF		11 Hort.	204
3aw Feeds and Feeding	I	8 D		200 Agr.	205
	II	8 D		109 Sch.	206
	III	3 D		200 Agr.	207
	IV	3 D		209 Agr.	208
4bw Animal Breeding	I	8 MWF		200 Agr.	209
	II	{ 8 MW		200 Agr.	210
		{ 8 F		14 Hort.	
	III	{ 8 MW		200 Agr.	211
		{ 8 F		21 Sch.	
	IV	{ 8 MW		200 Agr.	212
		{ 8 F		109 Sch.	
6bw Judging Types and Breeds of Farm Animals	I		10-12 MWF	L.S.P.	213
	II		10-12 MWF	L.S.P.	214
	III		1- 3 MWF	L.S.P.	215
6aw Judging Types and Breeds of Farm Animals			10-12 MWF	L.S.P. *	216
7bw Advanced Live Stock Judging			1- 3 MThS	L.S.P.	217
8bw Beef Production		3 TThS		200 Agr.	218
9bw Pork Production		3 MWF		200 Agr.	219
10aw Sheep Production		8 TThS		21 Sch.	220
11aw Horse Production		9 MWF		109 Sch.	221
Butchering					
1bw Farm Butchering Meat Cutting and Curing			3- 5 MWF	22 Sch.	225
Dairy Husbandry					
1aw Farm Dairying	I	9 TTh		Poultry	230
	II	9 TTh	1- 3 TTh	Dairy	
			10-12 TS	Poultry	231
	III	9 TTh		Dairy	
			10-12 WF	3 Dairy	232
				Dairy	

Course	Section	Lecture	Laboratory	Room	Card No.
	IV	9 TTh		3 Dairy	233
1bw Farm Dairying	I	9 TTh	10-12 MTh	Dairy	
			1- 3 TTh	3 Dairy	234
	II	9 TTh		Dairy	
			10-12 TS	3 Dairy	235
	III	9 TTh		Dairy	
			10-12 WF	Poultry	236
	IV	9 TTh		Dairy	
			10-12 Th	Poultry	237
			{ 1- 3 S	Dairy	
2bw Milk Production		8 MWF		3 Dairy	238
3aw Farm Buttermaking	*				239
4bw Dairy Cattle Judging			1- 3 T	Poultry	240
5bw Dairy Sanitation		8 TTh		3 Dairy	241
			8-10 S	4 Dairy	
6bw Creamery Buttermaking..		*	*		242
7bw Testing Dairy Products ..		*	*		243
8bw Ice Cream Making		*	*		244
9bw Creamery Arithmetic		*	*		245
10bw Dairy Mechanics		*	*		246
Entomology					
1aw Injurious and Beneficial Insects		11 MWF		11 Hort.	250
			1- 3 T	15 Hort.	
2aw Farm Beekeeping		8 TTh		11 Hort.	251
			8-10 S	15 Hort.	
Farm Crops					
1aw Cereal Crops and Grain Judging	I	9 MWF		117 Agr.	260
			1- 3 MWF	1 Agr.	
	II	9 MWF		117 Agr.	261
			1- 3 TThS	1 Agr.	
2bw Forage Crops	I	8 TThS		200 Agr.	262
			1- 3 M	1 Agr.	
	II	8 TThS		200 Agr.	263
			1- 3 Th	1 Agr.	
3bw Advanced Grain Judging..			1- 3 TWF	1 Agr.	264
4aw Crop Rotations		10 MWF		200 Agr.	265
5bw Production of Pure Bred Farm Seeds		10 TThS		200 Agr.	266
Farm Management					
1bw General Farm Management		9 MWF		3 Dairy	270
2aw Farm Accounts		{ 8 MWF 9 TTh		11 Hort.	271
Farm Mechanics					
1aw Farm Construction Methods		3 TTh		11 Hort. Mach.	280
			3- 5 MW		
2bw Farm Machinery and Engines		11 TTh		209 Agr. Mach.	281
			3- 5 TTh		
Home Economics					
1w Preparation of Food		*	*	*	360
2w Preparation of Food 2		*	*	*	361
11w Planning and Preparation of Meals		*	*	*	362
12w Planning and Preparation of Meals 2		*	*	*	363
30w Canning and Preserving..		*	*	*	364
50w Sewing		*	*	*	365
51w The Dress Problem		*	*	*	366
52w Dressmaking		*	*	*	367
60w Preventive Medicine		*	*	*	368
61w Home Care of the Sick		*	*	*	369
70w Art in Every Day Life		*	*	*	370
Horticulture					
1aw Farm Orchard and Garden Management	I	9 TTh		8 Hort.	290
			10-12 TS	02 Hort.	
	II	9 TTh		8 Hort.	291
1bw Farm Orchard and Garden Management	I	9 TTh	10-12 WF	02 Hort.	292
				200 Agr.	

Course	Section	Lecture	Laboratory	Room	Card No.
	II	9 TTh	10-12 TS 10-12 WF	02 Hort. 200 Agr. 02 Hort. 8 Hort. 8 Hort. 8 Hort.	293 294 295 296 297 298
3bw Landscape Gardening ...		3 MWF			
4aw Commercial Orcharding ..		8 TThS			
5aw Vegetable Gardening		3 TTh; 9 S			
6aw Fruit Packing			1- 3 MWF	02 Hort.	
7bw Spraying			10-12 M 1- 3 TF	02 Hort.	
Poultry Husbandry					
1aw Farm Poultry Manage- ment	I II	3 MWF 8 MWF		8 Hort. 3 Dairy	300 301
1bw Farm Poultry Manage- ment		3 MWF		Poultry	302
2aw Farm Poultry Practice ..		2 Th		Poultry	303
3bw Poultry Judging		11 Th	1- 3 MW	Poultry	304
4bw Incubating and Brooding Practice		11 S	1- 3 WS *	Poultry	305
Rural Economics					
1aw Rural Economics		1 MWF		200 Agr.	310
2bw Cooperative Banking		1 MWF		200 Agr.	311
Soils					
1bw Soil Tillage	I II III IV	9 MF 9 MF 9 MF 9 MF	10-12 Th 1- 3 F 1- 3 S 10-12 T	11 Hort. 100 Agr. 11 Hort. 100 Agr. 100 Phys. 100 Agr. 100 Phys. 100 Agr.	320 321 322 323
2aw Soil Fertility Manures and Fertilizers		11 TTh	1- 3 S	200 Agr. 100 Agr. 8 Hort.	324 326
3bw Soil Management		8 TThS			
Shop Work					
1aw Woodwork	I II		10-12 TThS { 4- 6 TTh { 3- 5 S	M.A. M.A.	330 331
1bw Woodwork			{ 4- 6 TTh { 3- 5 S	M.A.	332
2aw Forging	I II		10-12 TThS { 4- 6 TTh { 3- 5 S	M.A. M.A.	333 334
2bw Forging			{ 4- 6 TTh { 3- 5 S	M.A.	335
3aw House Framing			4- 6 MWF	M.A.	336
4bw Barn Framing			4- 6 MWF	M.A.	337
5aw Advanced Forging			4- 6 MWF	M.A.	338
6bw Advanced Forging			4- 6 MWF	M.A.	339
Veterinary Science					
1bw Prevention and Treatment of Animal Diseases	I II III IV	9 WS 9 WS 9 WS 9 WS	1- 3 FS 1- 3 TTh 1- 3 MW	100 Phys. Vet. 100 Phys. Vet. 100 Phys. Vet.	350 351 352 353
2aw Infectious Diseases and Farm Sanitation		10 TTh	10-12 MS 10-12 S	200 Vet. Vet.	354

*Hours to be arranged

UNIVERSITY CALENDAR

Session 1916-17, at Columbia

Summer Session

1916

June 8.....Thursday, Registration
 June 9.....Friday, organization of classes
 August 4.....Friday, examinations

First Semester

September 14, 15, and 16.....Thursday, Friday, and Saturday, entrance examinations
 September 18, 19, and 20.....Monday, Tuesday, and Wednesday registration
 September 20.....Wednesday, 11 a. m., opening convocation
 September 21.....Thursday, 8 a. m., class work in all divisions begins
 November 1 to December 21...First term, Two-Year Winter Course in Agriculture
 November 29.....Wednesday, 4 p. m. }

to
 December 4.....Monday, 8 a. m. } Thanksgiving holidays

December 21.....Thursday, 4 p. m. }
 1917 to } Christmas holidays

January 3.....Wednesday, 8 a. m. }
 January 8 to February 23.....Second term, Two-Year Winter Course in Agriculture

January 24.....Wednesday
 to } Mid-year examinations
 January 31.....Wednesday }

Second Semester

February 1, 2.....Thursday and Friday, registration, second semester

February 3.....Saturday, 11 a. m., opening convocation

February 5.....Monday, 8 a. m., class work in all divisions begins

February 22.....Thursday, Washington's birthday, holiday

April 4.....Wednesday, 4 p. m. }
 to } Easter holidays

April 10.....Tuesday, 8 a. m. }

May 27.....Sunday, Baccalaureate address

May 30.....Wednesday, Commencement Day

May 31.....Thursday
 to } Final examinations
 June 7.....Thursday }

THE
UNIVERSITY OF MISSOURI
BULLETIN

GENERAL SERIES

EDITED BY
H. H. KINYON
University Publisher

The General Series of the University of Missouri Bulletin consists of the announcements of the various colleges and schools which make up the University. These announcements will be sent free upon request to the Dean of the University Faculty, Columbia, Missouri.

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THE UNIVERSITY OF MISSOURI BULLETIN

VOLUME 20, NUMBER 17

GENERAL SERIES

1919, No. 6

COLLEGE OF AGRICULTURE

ANNOUNCEMENT, 1919-20



ISSUED THREE TIMES MONTHLY; ENTERED AS SECOND-CLASS MATTER
AT THE POSTOFFICE AT COLUMBIA, MISSOURI—10,000
JULY, 1919

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UNIVERSITY CALENDAR

Session 1919-20

1919

FALL TERM

Aug. 26, 27, 28	Tuesday, Wednesday, Thursday, entrance examinations
Aug. 29, 30	Friday, Saturday, registration
Aug. 30, 7:30 p. m.	Saturday, opening convocation
Sept. 1, 8 a. m.	Monday, class work begins
Oct. 27, 8 a. m.	Monday, to
Dec. 20, noon	Saturday
Nov 27	Thursday, Thanksgiving Day, holiday
Dec. 20, noon	Saturday, fall term ends
	Christmas Holidays

WINTER TERM

Dec. 30	Tuesday, registration
Dec. 30, 7:30 p. m.	Tuesday, opening convocation
Dec. 31, 8 a. m.	Wednesday, class work begins
Dec. 31, 8 a. m.	Wednesday, to
1920	
Feb. 27, 4 p. m.	Friday
Feb. 22	Sunday, Washington's Birthday
April 18	Sunday, Baccalaureate Address
April 20, 4 p. m.	Tuesday, winter term ends
April 22	Thursday, Commencement Day

SPRING-SUMMER TERM

April 24	Saturday, registration
April 24, 7:30 p. m.	Saturday, opening convocation
April 26, 8 a. m.	Monday, class work begins
June 19	Saturday, first half of term ends
June 21	Monday, second half of term begins
Aug. 14, noon	Saturday, spring-summer term ends

OPPORTUNITIES IN AGRICULTURE

The present affords many opportunities for the producer in agriculture. Prices are high and demand is strong. There is still a shortage of foodstuffs and as long as such a condition exists farm produce of the right kind and quality can be sold at a fair profit. During the next few years (the reconstruction and adjustment period) there will be a great demand for more trained men in agriculture, such as up-to-date farmers, farm managers, managers of large estates, teachers in secondary schools of agriculture, normal schools, colleges, and universities, experiment station workers, county agents, etc. It is your privilege to help develop and maintain an adequate agricultural program. Will you not enter the ranks of trained men that you may be of greater value in this service? The College of Agriculture, University of Missouri, trains men to understand better the problems of agricultural development. Some of the many opportunities open to those who have had training in the College of Agriculture are described below.

I. Farming: The College of Agriculture of the University of Missouri believes that the man who desires to spend his life on a Missouri farm should have the same opportunity for training in his profession as has the doctor, the lawyer, the teacher, or the preacher. The standard of production must be raised. This is no more important, however, than the need of putting better business methods into farm practices and of completely making over the social fabric of the country so that the farm may be the best place in the world to live and enjoy life. A sensible training in agriculture makes this possible.

II. College Work: With the world-wide awakening to the need of better farm methods has come a correspondingly rapid growth and development of agricultural colleges everywhere. This has opened many teaching positions to those who know agriculture and know how to teach it to college students. One of the serious problems confronting our agricultural colleges is to find men equipped by training and natural inclination to fill the teaching positions which are always waiting. More than 4,000 teachers are employed by the agricultural colleges of the United States.

III. Vocational Agriculture: There is a rapidly increasing demand for teachers of agriculture in high schools. This demand has been greatly stimulated by the passage of the Smith-Hughes Act, giving federal aid to those schools qualifying under its provisions. There is evidence that one of the next great developments in agricultural education will be found in the high schools of the country, thru the influence of this act. Agricultural college graduates will

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therefore be in demand at attractive salaries to fill these positions. A special course leading to the degree of Bachelor of Science in Agriculture is being offered by the College of Agriculture, beginning in 1918, for the training of these teachers. (See page 27.)

IV. Agricultural Experiment Station Work: Of even greater importance than the teaching of scientific agriculture in colleges and secondary schools is the investigation of farm problems conducted by the various agricultural experiment stations. These problems are concerned with improvement of the standard farm crops and the breeding of new varieties of grains and forage plants; the control of plant and animal diseases; the chemical analysis of soils and fertilizers; the economical feeding of live stock for meat, and labor; the control of injurious insect pests; the study of chemical and bacterial agencies in the soil; the working out of practical methods of orchard, farm and garden management. The field for agricultural research is unlimited and the demand for such investigations increases with the years. More than 1,200 persons are now engaged in agricultural experiment station work in the United States.

V. Live Stock Farming: The most profitable farms in the Middle West are live stock farms. Live stock farms which yield the largest returns are equipped with pure bred animals. The business of breeding pure bred live stock is profitable. The demand for high class animals is increasing rapidly. The college teaches breed types, pedigrees, and expert handling of pure bred, registered live stock.

VI. Dairy Farming: There probably is no one branch of agriculture in which there has been greater growth in the last decade than that of dairy farming. Cows are constantly breaking the records for the production of milk and butter. Farmers with inferior cattle are demanding a better grade. The dairyman who knows how to breed and feed dairy cows and how to care for and market their products has an unlimited opportunity.

VII. Fruit Growing: There are thousands of acres of unprofitable orchards in Missouri. These orchards have not received proper care. There is a great demand for first class fruit and good opportunities in fruit growing for one who knows how. The man who is successful in fruit growing must be able to prune and spray his trees properly and know how to market his fruit.

VIII.—Creamery Operating: The rapid development of the dairy industry has caused many new creameries to be established. This, together with close competition, has resulted in an increased demand for trained creamery operators. These men must know the technical methods that are followed in the manufacture of dairy products, and understand the problems of distribution and marketing. Operators and employees of creameries who have agricultural

college training have an excellent opportunity to aid in the development of the dairy industry in their respective communities.

IX. Country Ministers' Work: It is now generally recognized that the country minister of the future will have a much closer relationship to the life of the community which he serves than he has had in the past. Ministers who live in the country and take a leading part in the agricultural life of the community are the ones who will render the most efficient service. An agricultural college training will increase the efficiency of country ministers.

X. Industrial and Commercial Work: The railroad and transportation companies employ a large and increasing number of trained agricultural men. The fertilizer companies are looking to the agricultural colleges to supply them with men who understand the whole problem of increasing and maintaining soil fertility. Packers, grain dealers, milling concerns, manufacturers of farm machinery and motors, and real estate agencies are all employing men trained in agriculture.

XI. Agricultural Journalism: The number of agricultural college graduates who have taken editorial positions with farm papers in the last five years has probably been greater than in the twenty years preceding. It is a growing field, affording excellent opportunities.

XII. Extension Work: The big problem of the agricultural colleges and experiment stations today is the problem of how to carry the information in their possession to the farmers of the nation and apply it directly to the farm. The farmers themselves and all persons interested in the farm are demanding that the agricultural colleges increase their extension service. It will take a good sized army of men to meet the needs of the extension service during the next decade. These men must largely be college graduates. They must know the "how" and "why" of farming.

Forty-five counties in Missouri have county agents at the present time (April 1, 1919). Five other counties have completed all financial and organization arrangements and will employ agents as soon as men can be found to fill the positions. There are six district agents employed covering a total of twenty counties, making a total of sixty-five counties that have all or part of the time of an agricultural agent allotted to them. The interest in this work seems to have increased rather than diminished since the war, and the organization of farm bureaus is going steadily forward.

XIII. Service in the United States Department of Agriculture: The United States Department of Agriculture holds to the agricultural interests of the entire nation a relation similar to that which the College of Agriculture holds to the farming interests of Missouri. Altogether there are 15,000 persons in the service of the

6 ANNOUNCEMENT OF THE COLLEGE OF AGRICULTURE

national Department of Agriculture. Under its supervision comes the extensive meat inspection service, food inspection, and various other forms of government inspection; the weather service with branches and substations in every state; an extensive publication service; the administration of government agricultural and forest lands; an extension service covering every phase of agricultural activity concerned with the actual processes of farming, the farm home, social conditions on the farm, or the education of the farm boy and girl thru the medium of boys' and girls' clubs. Many of these positions are open only to graduates of agricultural colleges.

XIV. Forestry Work: With the rapid diminishing of the timber supply, the nation as a whole and several of the states individually have awakened to the need of a systematic forestry service in order to replenish our forest areas and conserve the timber supply which still remains. This has called into service a large body of men trained along agricultural and forestry lines. The demand for men has led to the establishment of forestry schools and this in turn has created a demand for teachers of forestry. The lumbering industry is also drawing heavily upon college-trained foresters. Graduates of the College of Agriculture have special opportunities to enter this field on account of the nearness to the great lumbering region of the Southwest.

XV. Landscape Gardening: In the care of country estates, city parks, and municipal improvement projects, men are needed who understand soils, fertilizers and the general principles of plant growing and development, and who combine with this fundamental knowledge, a thoro acquaintance with trees, shrubs, and flowering plants as well as a knowledge of the principles underlying landscape gardening.

UNIVERSITY OPEN THE ENTIRE YEAR

The work of the University of Missouri continues thruout the entire year. Formerly the University was open for two semesters, including approximately sixteen weeks of school work each, and a summer session of eight weeks. The revised plan provides for three terms of sixteen weeks each. It is not expected many students will remain in the University eight consecutive terms in order to finish the work for a degree, altho it is possible to do so. This three-term plan has particular advantages in that the winter term closes in April, thus allowing students to return to the farms to put in a crop. Those students who desire to spend the spring-summer term in the University, however, will find most of the agricultural courses offered.

COMPLETE AND MODERN EQUIPMENT

BUILDINGS

Agricultural Hall: A two-story stone structure with a high basement and an auditorium seating 500 persons. More than 1,000 students may be accommodated at one time in classrooms and laboratories. The building includes offices of the dean and director, the seed testing laboratory, the agricultural library, the departments of soils, farm crops, animal husbandry, farm management, rural economics, and the extension service.

Horticulture Hall: A stone building, two stories and a well-lighted basement, with plant house and insectary, classrooms, laboratories, offices and preparation rooms for horticulture, landscape gardening, and entomology.

Dairy Hall: A stone building, two stories with cheese-curing room in basement, rooms for creamery manufactures, cheese-making, farm dairy work, milk-testing laboratory, dairy bacteriology, offices, and classrooms.

Physics Hall: This building on the East Campus is a modern fire-proof laboratory. Lecture rooms and laboratories are well-lighted, excellently equipped, and convenient. In addition to the department of physics, the department of forestry is housed on the second floor of this building.

Schweitzer Hall: A new two-story stone building for agricultural chemistry, 170 feet long and 65 feet wide, with well-lighted basement. Half of the first floor is occupied by the offices and general chemical laboratories of the Agricultural Experiment Station. The basement contains a thoroly equipped nutrition laboratory with demonstration room and large refrigerating rooms offering exceptional facilities for meat studies, including dressing and curing. The rest of the building is given over mainly to students' laboratories, lecture rooms, and class-rooms.

Biology Hall: A two-story stone building with an exceptionally well-lighted and ventilated basement. The building is 220 feet by 60 feet. It is of fire-proof construction thruout and is considered the most modern laboratory building of the University. The departments of zoology and botany, in which agricultural students receive instruction, are housed in this building. The laboratories are equipped with modern furniture and fixtures. There are two large lecture rooms in this building.

Live Stock Judging Pavilion: A new Live Stock Judging Pavilion is available for the instruction in live stock judging and animal production. This building is adjacent to barns on the University Farm. It is of steel and wood construction, the frame

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work being of steel. The outside dimensions are 90x160 feet. The arena is 50x120. It has a seating capacity of 1,500. The arena can be divided by dropping a large curtain, thus making it possible to hold two large classes in live stock judging at the same time. The building includes, in addition, offices, practicum rooms, locker rooms, and shower baths. During four winter months, it is also used as a gymnasium for the short course students.

Greenhouses: Six greenhouses are available for instruction and investigation. Three greenhouses, each 25x100 feet; two, each 16x50 feet, and one 25x50, embracing a total of 10,350 square feet under glass, are used by the departments of horticulture, entomology, botany, soils, and farm crops. In addition to these there are 1,000 square feet of hot bed and cold frame space under glass. This glass space affords facilities for instructional work, the maintenance of plant collections and investigations.

Veterinary Hall: The veterinary department is housed in a new three-story building given over exclusively to investigation and instruction in veterinary science. The building contains laboratories for anatomy, physiology, investigations in contagious and infectious diseases, and operating rooms for clinics.

Poultry Hall: A two-story stone building, including general office, incubator room equipped with various types of incubators, classrooms, and laboratory.

The poultry department has one fifteen-pen laying and breeding house, a feed house with killing pen in the basement, three farm poultry houses, one experimental breeding house, and ten portable colony houses. Several hundred fowls, representing the popular varieties, are kept for instructional and experimental purposes.

Barn Equipment: Special barns for horses, sheep, dairy cows, and hogs and feeding sheds for beef cattle are included in the equipment of the College of Agriculture. All barns, sheds, and lots are constructed with practical usefulness in mind, and information concerning their efficiency is available.

LABORATORIES

Agricultural Engineering: The agricultural engineering laboratory contains a large assortment of the best modern machinery, including one or more samples of the principal field and power machines. A line shaft driven by an electric motor is available for demonstrating these machines.

For instruction in gas engines and tractors, the laboratory is equipped with twelve stationary and portable gasoline and oil engines, several four-cylinder motors, various types of transmissions and differentials, and samples of the latest type of tractors with

suitable equipment for testing them. Lighting units are provided for work on farm lighting systems. Drafting tables are provided to accommodate the men designing farm buildings.

The equipment for concrete work includes a complete set of concreting tools, molds for building blocks, forms for fence posts, water troughs and tanks, and tile machines, with small apparatus for testing cement and aggregates. Levels and transists with a complete set of tools are provided for farm surveying and tile drainage work.

Botany: Laboratories for physiological and structural botany, and culture rooms for physiological, mycological, and bacteriological work are in the new Biology Building. They are equipped with compound and dissecting microscopes, microtomes, steam and steam pressure sterilizers, incubators, balances, precision apparatus, and glassware. The herbarium amply illustrates the local flora.

Agricultural Chemistry: Schweitzer Hall, the new agricultural chemistry building, furnishes exceptional classroom and laboratory facilities for undergraduate instruction. The new building has two large student laboratories, a nitrogen laboratory, two balance rooms and an ether extraction room exclusively for student laboratory work. The total capacity of the laboratories is 260 students each term. A number of research rooms are provided to facilitate the research work of more advanced students, giving special opportunities for investigations of problems in animal nutrition, silos, fertilizers, foods and feed stuffs, including a critical study of the provisional and official methods of the Association of Official Agricultural Chemists.

Entomology. The laboratories and insectary in Horticultural Hall are supplied with microscopes, dissecting instruments, microtomes, breeding cages, aquaria, spraying machines, insecticides and reagents. The museum contains collections of several thousand species of the more injurious and beneficial insects, arranged to illustrate their habits of work and life history.

Horticulture: The horticultural laboratories occupy about 6,000 square feet of forcing-space under glass, a laboratory for the propagation of dormant plants. and storage room for cuttings, bulbs, stocks, and scions. The department also has laboratories for soil examinations and investigation of special horticultural problems regarding plant growth. The out-of-door collection on the horticultural grounds comprises about 1,000 varieties of fruit, ornamental shrubs and trees for a study of planting, pruning, cultivating, and spraying.

Farm Crops: The laboratories for instructional and investigational work include a large and well-equipped laboratory for the study and exhibition of the various types and most important va-

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ieties of farm crops, including material and equipment for the judging and handling of grains, a room for storing and preserving classroom material, a germinating room, a seed house, a research laboratory, and a seed testing laboratory maintained in co-operation with the United States Department of Agriculture.

The department also maintains an economic plant garden in which are grown the various types and principal varieties of all farm crops, together with the most prominent wild related forms. This affords an excellent opportunity for the study of such crops in the field and material for systematic study of botanical characters and relationships in the laboratory.

Dairy Husbandry: Facilities for instruction in dairy manufactures and dairy products include a creamery room equipped with power separators, churns, pasteurizers, sterilizers, and butter printers; a cheese room provided with vats; cheese presses; a cheese curing room; cream separators, milk testing apparatus, and hand churns; refrigerating and cold storage plant; a laboratory for instruction and investigation in dairy bacteriology, and a laboratory for investigation in the composition of milk. From 500 to 800 pounds of milk are clarified, pasteurized and bottled daily for the University Commons. From 500 to 1,000 pounds of butter are manufactured each week thruout the year. The surplus skim-milk is sold. Cream cheese and ice cream are also manufactured regularly.

Forestry: The forestry laboratory for the study of wood technology and dendrology is in Physics Hall. The equipment includes a collection of the commercial woods of the country; cross and tangential sections of the trunks of trees of Missouri; an herbarium of tree species; exotic and native trees growing on the University Campus; a forest nursery containing seed and transplant beds; and forty acres of timber near the University for experimental planting and demonstration.

A forest camp for the summer course in forestry is established each summer on one of the University forests in the Ozark region of Southern Missouri. This camp is used for practical instruction in lumbering, mensuration, and silviculture.

Soils: The facilities for instructional and investigational work in soils include a large soils laboratory for the required course of instruction, a soil bacteriological laboratory, storage rooms, and a special laboratory for advanced students. The equipment of the laboratories includes that necessary for work in soil physics, soil fertility, and soil bacteriology. A plant house 30x65 feet is provided for special experiments by students and by those engaged in experiment station investigations. In addition, the various soil experiments in progress on the Agricultural Experiment Station field

offer special opportunity for both instruction and investigation, while the results of the soil survey and of the various outlying soil experiment fields are used to good advantage in the instructional work.

Physics: The physics laboratories are in Physics Hall. Rooms are equipped with various electric circuits, compressed air, gas, and hot and cold water. The equipment is modern and adequate. The lecture rooms are especially designed for experimental demonstrations in general physics with special apparatus for this work.

Zoology: Laboratories for the study of general zoology, embryology, cytology, and other zoological subjects are in Biology Hall. They are equipped with compound and dissecting microscopes and other apparatus which is required in the different courses offered. The lecture room is equipped with a stereopticon lantern for the projection of microscopic slides, lantern slides and opaque objects.

University Serum Farm: The hog-cholera serum plant is on a 90-acre farm about three miles north of the University Farm. The plant has a capacity of 50,000,000 cubic centimeters of serum a year. When at full capacity, 1,500 hyper-immune hogs will be kept, and the College will be able to meet any emergency. With this equipment the students in the College of Agriculture are able to make a thoro study of the methods of controlling and eradicating hog cholera as well as of the manufacture of serum.

LIVE STOCK EQUIPMENT

Dairy Herd: The department of dairy husbandry at the present time has nearly 100 pure bred animals of the Jersey, Holstein, Ayrshire, and Milking Shorthorn breeds. Six of these cows have made records of more than 20,000 pounds of milk in a year. Sixteen have made records of more than 700 pounds of butter in a year while in the herd. One cow has produced 960 pounds of butter in one year. All the animals in the herd except some of the herd bulls have been bred on the University Farm. For the student who expects to follow dairy farming, this herd offers an excellent opportunity to study a successful system of herd management. In 1917 the Dairy Judging Team, the training of which was made possible by a study of this herd, won the championship at the National Dairy Show in a judging contest in which teams representing sixteen state agricultural colleges took part.

Horses: The department of animal husbandry maintains a stud of thirty horses representing Percherons, American Saddle Horses, standard-bred horses, and Morgans. Sons and daughters of some of the most famous sires of America are included. In addition

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there are available for instructional purposes fourteen head of high class work horses and mules—the property of other departments—besides several stables of sale, breeding, and show horses and mules in or near Columbia.

Swine: The swine herd includes breeding herds of Duroc Jerseys, Poland Chinas, and Berkshires. About twenty-five mature sows are kept. These, with their offspring, make a herd of 150 to 200 hogs, which furnish material for instructional purposes in pork production and in swine judging. From 15 to 75 head of fat barrows are exhibited at live stock shows each year. The herd has produced champion and first prize barrows at the International Live Stock Show, and these, together with their sires, dams, and pigs of similar breeding, are available for instructional purposes. Information concerning the methods of feeding them is also available.

Beef Cattle: The department of animal husbandry maintains a herd of about sixty head of pure-bred beef cattle, representing the Shorthand, Aberdeen-Angus, Hereford, and Galloway breeds. The breeding herd is maintained in a practical and productive manner which forms a basis for a study of the management of beef cattle and supplies specimens for judging work. A herd of show steers exhibited each year at some of the leading live stock shows in the United States is also available for judging practice. This herd includes champion and first prize individuals, together with some first prize groups. These cattle are available for instructional purposes, and the prizes which they have won furnish a measure of their efficiency.

Typical specimens of the various market classes and grades of cattle are obtained from a market center each winter for demonstration purposes. The Agricultural Experiment Station beef cattle, numbering from forty to eighty head, are also available for study.

Sheep: A breeding flock of about one hundred pure-bred sheep representing the Shropshire, Hampshire, Dorset Horn, South Down, Cotswold, and Delaine Merino breeds is maintained for instructional work. A small grade flock is also kept to illustrate the market classes and grades of sheep and to emphasize the value of using pure bred rams. The students are taught to shear the sheep, prepare them for shows, and to manage the flock from the farmer's standpoint.

LAND EQUIPMENT

Altogether, there are 700 acres in the University Farm. A large part of this is hilly bluegrass pasture. Forty acres of the

land are used for experiments in forestry. There is enough cultivated land to satisfy the requirements of instruction, and students are given an opportunity to study in the field the effects of proper and improper soil management and crop rotation as well as to observe all the facts of plant growth and plant development, which are necessary to a proper understanding of farm crop rotation. The horticultural grounds are adequate to teach the principles of orchard and garden management in every detail.

University Fruit Farm: The University owns eighty acres of land near Turner Station, five miles south of Columbia. This farm lies on the fertile loess soil common along the Missouri River, said to be the best fruit soil known. More than thirty acres are now planted to the leading varieties of apples, peaches, pears, plums, cherries, and small fruits adapted to Missouri. Here students study the adaptation and characteristics of the different fruits and observe the effect of different cultural methods used.

University Forests: As a result of the First Morrill Act, passed by Congress in 1862, the University acquired a large amount of public land. After disposing of such parts as could be sold for farming, there remains of this land about 50,000 acres. These lands are administered by the department of forestry. They are divided into six University Forests—the Butler, Gasconade, Little River, Taney, Ripley, and Osage and are in charge of forest wardens. Every summer the students in the department of forestry are required to spend eight weeks in an instruction camp on these lands. Investigations are being made to determine the growth of native trees and the best methods of handling Missouri forest lands.

Other Lands: A 120-acre farm lying four miles south of Columbia has been rented for the department of animal husbandry. On this farm is maintained stock which is used for instructional work during the school years and for which there is not room on the University Farm. Some experiments are carried on here.

THE TEACHING STAFF

Eighty teachers give their time to the instruction of agricultural students in the strictly agricultural subjects. They also give a considerable part of their time to making experiments and a limited part to extension work among the farmers of the state. This combination of duties places them in a position to teach most effectively because they are in close contact with the farmers, while at the same time they are helping solve the farm problems. Thirty-seven persons give their entire time to extension teaching and demonstration in agriculture and home economics out in the state. In addition to this corps of teachers, there are thirty-five

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teachers who give instruction to agricultural students in the fundamental sciences, such as geology, zoology, botany, chemistry, and physics, upon which sciences technical agriculture is founded.

THE COURSE OF STUDY

The fundamental idea in planning the course of study at the College of Agriculture is to train men to be farmers, teachers, and investigators in the broadest sense of the term. The course is founded on the belief that to be a successful farmer, a successful teacher of agriculture, a successful investigator of farm problems, or a practical writer on farm subjects, a man must first of all understand farming; he must be taught to see the application of every scientific fact to the actual practice of farming; he must be taught to realize that the whole scheme of agricultural education centers about the soil and its products. This is the idea upon which the course in agriculture at the University of Missouri is built.

Undergraduate Instruction: The undergraduate courses lead to the degree of Bachelor of Science in Agriculture. The College of Agriculture is fortunate in being organized as a division of a University comprising a College of Arts and Science, a School of Education, a School of Engineering, a School of Mines and Metallurgy, a School of Law, a School of Journalism, a School of Medicine, and a School of Business and Public Administration. Coordinating with the work of the University, altho independent from it, is also the Missouri Bible College. The student in agriculture, if he desires, may broaden his course by electing subjects from any of these other divisions of the University. His associations while at the college bring him in contact with men in other divisions whose purposes and views of life are widely divergent. Because of these associations, a graduate of the College of Agriculture leaves the University a broader man, with a better understanding of the world in which he is to live and of which he is to form an important part. Because of his breadth of view, and because of his studies outside the technical field of agriculture, he is better fitted for a higher citizenship and for a higher place in community life than is possible where opportunities are more restricted. Scholarships and prizes are available to students who meet certain requirements. For particulars in regard to these undergraduate scholarships and prizes, see the University of Missouri catalog, or address the Dean of the College of Agriculture, Columbia, Missouri.

Graduate Instruction: Graduate instruction in agriculture is offered in the Graduate School of the University of Missouri. The student cannot enter the Graduate School until he has completed the undergraduate course of study at the College of Agriculture

or at an institution of equal standing. The graduate course leads to the degrees of Master of Arts and Doctor of Philosophy. The College of Agriculture believes that those who lead in the development of agricultural life and thought must have the best training available. For those who intend to teach in a university or agricultural school or who expect to take up investigational work in an experiment station, a graduate course of study is highly important. The faculty of the College of Agriculture offers in the Graduate School of the University complete and adequate facilities for graduate instruction, and a large number of students of agriculture are enrolled in the Graduate School.

To encourage graduate study the University offers scholarships paying \$200 a year and fellowships paying \$400 as described in the University of Missouri catalog. Graduates of colleges are eligible for these agricultural scholarships and fellowships. Further information in reference to the scholarships and fellowships may be had by writing to the Dean of the Graduate School, University of Missouri, Columbia, Missouri.

STUDENT ORGANIZATIONS

The College of Agriculture recognizes the fact that a part of each student's training should be the development of his powers of administration and self-government. In pursuance of this idea, student organizations have been encouraged and every student is urged to affiliate himself with some organization or some movement in which students exercise their capacity to conduct important and complicated enterprises without the directing influence of the officers of the college. Many successful organizations are conducted by agricultural students.

The Agricultural Club: This union of all agricultural students in the University has been a power for good in promoting college spirit and loyalty to the College of Agriculture. The organization has worked unselfishly for the best good of all and is worthy of the active support of every agricultural student.

The College Farmer: The agricultural college paper is published monthly during the college year. Its excellent management deserves great credit for the uniformly high character of the publication. The purpose of the paper is to present reliable articles on agricultural subjects and to bring to the attention of the farmers and others the work of the college and station. The editors and managers are elected annually by the Agricultural Club.

The Farmers' Fair: Once a year the agricultural students give a county fair. This event calls for the display of considerable ability in organization and is useful in stimulating the ingenuity of

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individual students. A live stock, agricultural, and horticultural display divides attention with more recreative features provided by the students.

Barn Warming: A real old-fashioned barn warming is held by the students in the College of Agriculture each fall. This barn warming, formerly held in the loft of the horse barn but now in Rothwell Gymnasium, because of lack of space in the former place, is in the nature of an autumn festival.

Block and Bridle Club: An organization of students interested in animal husbandry has been formed for the discussion of animal husbandry problems. During Farmers' Week and during other live stock meetings in Columbia, club members perform valuable services showing visitors the College and explaining the work that is being done. Each year they spend much time and energy fitting live stock for the show rings.

Horticultural Club: This organization is composed of graduates and undergraduates who are specializing in horticulture. Its meetings are held twice a month and are given over to the reading of scientific papers and informal discussions dealing with horticultural problems.

University Grange No. 2094: The interest and responsibilities of the agricultural student do not end with his immediate surroundings in college. He justly feels that he owes a duty to the farming class to which he belongs. In the Grange, faculty and students meet and discuss the broader phases of agriculture which are of interest to them as farmers rather than students.

Students' Dairy Association: Graduate and undergraduate students in dairy husbandry have organized this association. It meets bi-monthly to discuss scientific and practical problems of dairying.

Forestry Club: Students and teachers in the forestry department meet twice a month for the presentation of papers and informal discussions of current events in forestry.

Honorary Societies: Students in the College of Agriculture have organized several honorary societies. The honor society of agriculture, Gamma Sigma Delta, is a graduate honorary society including in its membership faculty, alumni, graduate students, and seniors within one term of graduation. Membership in this organization is limited to men of high scholarship, capacity for original research, and leadership in modern agriculture.

Alpha Zeta is an honorary society for under-graduate students. Only upperclassmen of highest scholarship are eligible to membership.

Sigma Kappa Zeta is a student honorary horticultural society. Only upperclassmen of high scholarship and who are specializing in horticulture are eligible to membership.

PRACTICAL EXCURSIONS

In order to bring students into closest possible touch with the field of practical agriculture, different departments annually arrange for a number of excursions, mainly to the farms of successful farmers and breeders. The practical excursion, therefore, becomes an important factor in helping the college to impress upon the student the close connection between the work of the classroom and laboratory and the practical field of agriculture.

MEDICAL ATTENTION FOR STUDENTS

Regularly enrolled students in the University who pay the full fee of \$15 a term may have free medical attention and hospital care, except those in the employ of the University who hold rank higher than that of undergraduate student assistant. In the dispensary at Parker Memorial Hospital, students may consult with and have treatment by the members of the staff of the department of clinical medicine and surgery. The attention of the same staff physicians is available to students who have to be admitted to the hospital. No charge is made for surgical operations that are considered by the staff as imperatively necessary. Hospital care is rendered without charge except for extraordinary medicines and for special nursing.

A general physical examination is required of all new students. It is carried on in the hospital at specially appointed times by the members of the department of clinical medicine and surgery. Vaccination is required of all students.

For additional information regarding the care of students' health in the University of Missouri consult the annual catalog.

MILITARY AND PHYSICAL TRAINING

All physically fit men students in the University are required to take four terms of Military Science and Tactics and Physical Training during their freshman and sophomore years.

All women students are required to take four terms of physical training two hours a week during their freshman and sophomore years.

CULTURAL ADVANTAGES

Each year the University brings to Columbia talented lecturers, musicians, and artists. A series of musical concerts under the auspices of Phi Mu Alpha, a musical society, has become an established part of the season's attractions. Several good plays are pre-

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sented each year in the University Auditorium. The University assemblies held at frequent intervals are addressed by noted men from all parts of the United States and occasionally by men from abroad. Farmers' Week and Journalism Week draw to the University men of note in the fields of agriculture and journalism. The University art exhibits display some of the finest collection of paintings and art work that can be had outside of the principal art centers.

Students who are especially interested in a musical training will find ample facilities for such training in the University band, glee club, orchestra, or chorus. The city of Columbia, outside of the University, has some of the best teachers of vocal and instrumental music that can be found anywhere.

RELIGIOUS LIFE AT THE UNIVERSITY

On the average about 72 per cent of all the students registered in the University of Missouri are church members and about 18 per cent more have church preferences. There are more ministerial students in the University of Missouri in proportion to its enrollment than in any other state university. The Rev. Hugh Black, eminent theologian of New York, recently said, after delivering a series of religious addresses at the University, "I have found a greater appreciation of religious matters and interest in them in the University of Missouri than in the denominational institutions that I have visited." Many members of the University faculty are active in the church life of the community. The leading religious denominations in Columbia have efficiently organized the student work of their churches. Several of the churches employ assistant student pastors.

Young Men's Christian Association: The students of the University have always taken an active interest in the Young Men's Christian Association. This Association owns a \$60,000 stone building devoted to the religious and social life of the students of the University. In the building are rooms for the accommodation of eighty students. In addition there are quarters for the secretary and other officers of the association, an auditorium for meetings, and various committee rooms used by the student organizations. New students are advised to confer with the secretary of the Young Men's Christian Association in reference to finding suitable places to board and room. Students desiring employment should also consult the secretary in charge of this work in the Y. M. C. A. Building.

COLUMBIA A DESIRABLE STUDENT HOME

Columbia is near the center of Boone County, which is one of the central counties of the state. Branch lines lead to it from McBaine on the Missouri, Kansas, and Texas Railway and from Centralia on the Wabash Railroad. It is an ideal college town. The residents realize that the state of Missouri has entrusted them with the responsibility of providing a clean, wholesome environment for her sons and daughters during the four or more years of their college life. The city board of health is diligent in enforcing the health ordinances. The fire department looks to the proper equipment of all rooming and boarding houses so that the danger from fire is practically eliminated. The water supply is the best that deep-well service can afford.

Columbia is a city of broad paved streets, of beautiful shade trees, and home-like dwellings. The houses in the University section are built with an eye to beauty, comfort, and utility. In these houses, the homes of citizens, students in the College of Agriculture make their homes. There is one dormitory for men with a capacity of only twenty-three students. The Y. M. C. A. Building accommodates eighty, and the Missouri Bible College building forty in addition.

AGRICULTURE AND HOME ECONOMICS FOR WOMEN

Attention is called to the special curriculum in agriculture and home economics which has been arranged for the benefit of young women in the country who desire to have a knowledge of modern methods of agriculture. This course is correlated with the work in home economics and it is possible to get a complete training in the latter subject while pursuing courses in agriculture. The agricultural subjects adapted to women are largely in the departments of soils, farm crops, horticulture, botany, poultry husbandry, dairy husbandry, and animal husbandry.

See page (23) for curriculum.

REQUIREMENTS FOR ADMISSION

Candidates for admission to the College of Agriculture should write early to the Registrar, University of Missouri, Columbia, Missouri, for the general catalog of the University, blanks for reporting high school credits, and detailed information concerning admission to the University.

High school subjects which are required for admission are designated in terms of "units," a unit being the equivalent of a subject pursued five periods a week for at least thirty-six weeks, four units constituting a year's work.

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Fifteen units, the equivalent of a four year's high school course, are required for admission as a regular student to the College of Agriculture. Three units in English and one unit in mathematics are fixed requirements. These fixed requirements are waived in the case of graduates of high schools fully accredited by this University. The remaining eleven units may be selected from the list given in the University catalog. In preparation for admission to the College of Agriculture, students are strongly urged to take at least one laboratory science.

Entrance Conditions: Applicants for admission who are deficient in a small part of the requirements may be admitted conditionally at the discretion of the Committee on Entrance.

Students from accredited schools will not be admitted, subject to a condition, unless they are graduates of such schools.

Entrance conditions to the College of Agriculture must be removed within one year from the date of entrance. Students should consult with the Registrar regarding the removal of such conditions.

SUBJECTS ACCEPTED FOR ADMISSION

The subjects in which entrance units may be offered, the minimum and the maximum number of units that may be offered in each subject, and the number of units or hours required for admission to each college or school of the University, are to be found in the University catalog.

Admission by Examination: Students who have had the equivalent of a high school training either by private study or by study in an unaccredited school may gain admission to the College of Agriculture by passing entrance examinations. Permission to take the entrance examinations must be obtained in advance from the Registrar as described in the University catalog.

Special Students: Mature men and women may be admitted to the College of Agriculture for special study in such subjects as they are prepared to pursue with profit to themselves. Such students must be at least 21 years old. Special students are not candidates for degrees and cannot become such until they have fulfilled all requirements for admission as regular students. An application for admission as a special student should be made to the Registrar as described in the University catalog.

Admission from Junior Colleges: All students who have been graduated from accredited junior colleges in this or other states may enter the junior year of the College of Agriculture. If the student has taken work in science in the junior college he can generally complete the technical requirements in the College of

Agriculture in approximately four terms. Many Missouri students are using this opportunity to complete their education and get training in agriculture.

Admission from Standard Colleges: The curriculum of the College of Agriculture is so arranged that students who have completed their sophomore year in a standard college may get credit for all the work done and these credits will be accepted for a part of the requirements for the degree of Bachelor of Science in Agriculture. If such students have had considerable work in science in their college courses, it is possible to complete the requirements for Bachelor of Science in Agriculture in four terms. An increasingly large number of college students are taking advantage of this opportunity.

HOW TO ENTER THE COLLEGE

First, write to the Registrar, University of Missouri, Columbia, Missouri, for a blank certificate for admission and a University of Missouri catalog.

Second, when this blank is received take it to the principal of the high school (or other school) in which your preparatory education was received, tell him that you wish to enter the College of Agriculture of the University of Missouri and ask him to fill out the blank.

Third, when the blank is properly filled out mail it to the Registrar, University of Missouri, Columbia, Missouri. You will then be notified that your credits are approved or that you will be required to take entrance examinations in certain subjects.

Fourth, come to Columbia on August 29, 1919, (or December 29, 1919, if you wish to start with the opening of the second term.) Plan to be in Columbia before the second registration day at the latest.

Fifth, go to Academic Hall on the West Campus where you will receive instructions in regard to registration.

Sixth, for further information in regard to entrance write to the Registrar, University of Missouri, Columbia, Missouri.

FEES AND DEPOSITS

Tuition is free in all divisions of the University to students who are residents of the State of Missouri. Non-residents of the state are required to pay a tuition fee of \$10 a term, except in the Graduate School. A library, hospital, and incidental fee of \$15 a term is required of all students, except those in the short winter courses in agriculture who pay \$7.50 each term and those especially exempt by law or by rules of the Curators of the University. A

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fee of \$2 is charged for each diploma and a fee of \$1 is charged for each certificate given.

In laboratory courses fees and deposits are required to pay for material used, depreciation of equipment, and damage to University property. In some laboratory courses only a fee is required, in some both fee and a deposit, and in others only a deposit. For full statement of laboratory fees and deposits see the University catalog.

LIVING EXPENSES

The necessary expenses of living a term of sixteen weeks at the University are estimated in the table below:

Room Rent	\$24
Board	84
Books, stationery, and supplies	16
Laundry	16
Library, hospital, and incidental fees	15
Incidentals	25
<hr/>	
Total	\$180

The above estimate does not include laboratory fees and deposits. The estimate for board is based on the average price at the Commons and at private boarding houses. The estimate of room rent is based on the average cost of a room at private residences in Columbia. The estimate of books, laundry, and incidentals is considered liberal.

WORKING ONE'S WAY

It is variously estimated that from 20 to 30 per cent of the students in the College of Agriculture are paying all or a considerable part of their expenses by working while attending the University. A limited number of students work for the various departments of the college in caring for the live stock, assisting in the dairy department, working in the various divisions of the Agricultural Experiment Station, including Farm Crops, Soils, Veterinary Science, Farm Management, Agricultural Extension Division, Entomology, Agricultural Engineering, and giving assistance in pruning, spraying, and planting on the horticultural grounds.

Students also find employment in Columbia caring for furnaces, waiting on tables, clerking, and in numerous other ways. Prospective students who must earn part of their expenses should write to the Secretary, Employment Bureau, University Y. M. C. A., Columbia, Missouri, for information.

DEGREES

The degree of Bachelor of Science in Agriculture is conferred upon all students completing the four-year curriculum in agriculture for men and the four-year curriculum in agriculture and home economics for women.

The degree of Master of Forestry is conferred upon all students completing the five-year curriculum in forestry, and the degree of Bachelor of Science in Forestry may also be conferred upon completion of the first eight terms of this curriculum.

The degree of Master of Arts is conferred upon students by the Graduate School for two terms, graduate study in any of the departments of agriculture. (See announcement of the Graduate School.)

The degree of Doctor of Philosophy is conferred upon students in the Graduate School who have given not less than six terms of advanced study to some special branch and have attained exceptional proficiency in original research.

ANNOUNCEMENT OF THE COLLEGE OF AGRICULTURE

CURRICULA IN THE COLLEGE OF AGRICULTURE

A. Four-year curriculum in agriculture for men, leading to the degree of Bachelor of Science in Agriculture (B. S. in Agr.).

B. Four-year curriculum for the training of teachers of vocational agriculture, leading to the degree of Bachelor of Science in Agriculture (B. S. in Agr.).

C. Four-year curriculum in agriculture and home economics for women, leading to the degree of Bachelor of Science in Agriculture (B. S. in Agr.).

D. Five-year curriculum in forestry, leading to the degree of Master of Forestry (M. F.) Upon the completion of the first eight terms of this curriculum the degree of Bachelor of Science in Forestry (B. S. in F.) is conferred.

E. Two-year Winter Course in Agriculture.

F. Short Course for Women.

G. Course in Dairy Manufactures.

H. A Farmers' Short Course in Agriculture is offered each year in January at Columbia.

A FOUR-YEAR CURRICULUM IN AGRICULTURE FOR MEN

Required Work: The prescribed courses are indicated in the four-year curriculum in agriculture for men, page 25. All candidates for the degree of Bachelor of Science in Agriculture must satisfactorily complete 125 hours, including the requirement in military science and physical education. All candidates for the degree must have registered in and completed the hours (86) prescribed in the curriculum, and in addition 26 hours elected from technical agricultural courses and 13 hours from any subjects offered in the University of Missouri or other standard college. Technical agricultural subjects are all courses now being offered in the departments of agricultural engineering, animal husbandry, dairy husbandry, farm crops, farm management, horticulture, poultry husbandry, soils, and veterinary science; courses 109f and 110 in the department of entomology; agricultural chemistry 204, and all courses in rural economics now offered and numbered 100 or above. Candidates for graduation who matriculate without having adequate farm experience are required to have one year of practical farm experience before the degree will be conferred. All students are advised to get this experience before entering the College of Agriculture. The college cannot undertake to provide the means for satisfying this requirement.

Certificates to Teach: Students by properly selecting this work may obtain the degree of B.S. in Agriculture from the College of Agriculture and the certificate to teach valid for life from the School of Education in approximately four years and one summer term in the University. To obtain this certificate the students must elect 24 hours in education which must include the following courses: Education 102, Educational Psychology; Education 120, History of Education; Education 150, Theory and Observation of Teaching; Bacteriology and Preventive Medicine 1, Preventive Medicine; Education 131, School Economy; and Education 155, 156, 157, or 158, Practice Teaching. Courses in education may be taken as free electives under the curriculum in agriculture. Those desiring both the degrees and certificate should plan their course in consultation with the Dean of the School of Education and the Dean of the College of Agriculture.

By electing courses in consultation with the Dean of the School of Education students may obtain a certificate to teach valid for two years and the degree of B.S. in Agr. in four years.

Advisers: A corps of advisers appointed from the faculty by the dean is charged with the duty of advising students regarding their university work.

Regulations, Grades, and Credits: The general regulations governing grades and credits (See annual catalog) apply to all courses in this college. Students of exceptional ability may shorten the period of residence by superior scholarship. Students who in any term fall behind in more than 40 per cent of the hours in which they are registered at the end of that term, or who fall more than nine hours behind the total number of hours for which they have registered up to that time, exclusive of the first term of the freshman year, will be dropped from the college. The cumulative hour rule does not apply to work taken during the first term of the freshman year, but the application of the 40 per cent rule in the case of such students shall be at the discretion of the dean.

All students who have dropped under this rule are permitted to return after one term.

CURRICULUM

FRESHMEN*

Group I

<i>Fall Term</i>	<i>Winter Term</i>
Animal husbandry, 1f.....3 hrs.	English, 2w .....3 hrs.
Botany, 1f .....5 hrs.	Horticulture, 1w .....3 hrs.
Chemistry, 4f or 6f.....5 hrs.	Physics, 1w .....5 hrs.
English, 1f .....3 hrs.	Zoology, 1w .....5 hrs.
Military science and tactics 1 hr.	Military science and tactics 1 hr.
Physical training .....½ hr.	Physical training .....½ hr.

*During the freshman, sophomore and junior years, students are divided into two groups. The subjects taken by each group are the same but are taken in different order.

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Group II

<i>Fall Term</i>		<i>Winter Term</i>	
English, 1f	3 hrs.	Animal husbandry, 1w	3 hrs.
Horticulture, 1f	3 hrs.	Botany, 1w	5 hrs.
Physics, 1f	5 hrs.	Chemistry, 4w or 6w.....	5 hrs.
Zoology, 1f	5 hrs.	English, 1	3 hrs.
Military science and tactics	1 hr.	Military science and tactics	1 hr.
Physical training	½ hr.	Physical training	½ hr.

SOPHOMORES

Group I

<i>Fall Term</i>		<i>Winter Term</i>	
Botany, 3f	3 hrs.	Dairy husbandry, 1w.....	3 hrs.
Chemistry, 25f	5 hrs.	Farm crops, 1w	5 hrs.
Entomology, 2f	3 hrs.	Geology, 2w	3 hrs.
Military science and tactics	1 hr.	Organic chemistry, 15w....	3 hrs.
Elective	5 hrs.	Military science and tactics	1 hr.
		Elective	2 hrs.

Group II

<i>Fall Term</i>		<i>Winter Term</i>	
Dairy husbandry, 1f	3 hrs.	Botany, 3w	3 hrs.
Farm crops, 1f	5 hrs.	Chemistry, 25w	5 hrs.
Geology, 2f	3 hrs.	Entomology, 2w	3 hrs.
Organic chemistry, 15f	3 hrs.	Military science and tactics	1 hr.
Military science and tactics	1 hr.	Elective	5 hrs.
Elective	2 hrs.		

JUNIORS

Group I

<i>Fall Term</i>		<i>Winter Term</i>	
Animal husbandry, 100f.....	3 hrs.	Animal husbandry, 101w, or	
Agricultural chemistry, 1f...3	hrs.	farm crops, 104w, or horti-	
Botany, 100f, or veterinary		culture, 114w	3 hrs.
science, 1f	5 hrs.	Social science	5 hrs.
Soils, 1f	5 hrs.	Elective	8 hrs.

Group II

<i>Fall Term</i>		<i>Winter Term</i>	
Animal husbandry, 100f.....	3 hrs.	Animal husbandry, 101w, or	
Botany, 100f, or veterinary		farm crops, 104w, or horti-	
science, 1f	5 hrs.	culture, 114w	3 hrs.
Social science	5 hrs.	Soils, 1w	5 hrs.
Agricultural chemistry, 1f...3	hrs.	Elective	8 hrs.

SENIORS

<i>Fall Term</i>	<i>Winter Term</i>
Elective.	Elective.

B. FOUR-YEAR CURRICULUM FOR THE TRAINING OF TEACHERS OF VOCATIONAL AGRICULTURE

The curriculum in vocational agricultural teaching is designed to prepare teachers of agriculture for the secondary schools. The passage by Congress of the Smith-Hughes Act providing federal aid for those secondary schools giving approved courses in agriculture, home economics, or the trades is already creating a large demand for college trained teachers of agriculture. This curriculum has been arranged to meet the approval of the state and federal boards of Vocational Education charged with the administration of the Smith-Hughes Act.

Required Work: The prescribed courses are indicated in the curriculum outlined below. All students finishing under this curriculum must complete 125 hours, including military science. They must register in and complete the 106 hours prescribed, together with 13 hours elected from technical agricultural courses. The remaining 6 hours may be selected from any courses offered in the University or other standard college. In addition, students are required to have had two years of continuous farm experience before getting the degree. After July 1, 1920, the two years of farm experience must be offered in addition to the year required of all agricultural students.

CURRICULUM

FRESHMEN

<i>Fall Term</i>		<i>Winter Term</i>	
English, 1	3 hrs.	English, 1	3 hrs.
Horticulture, 1f	3 hrs.	Animal husbandry, 1w	5 hrs.
Gen. botany, 1f	5 hrs.	Gen. zoology, 1w	5 hrs.
Inorg. chem., 4f or 6f	5 hrs.	Gen. bacteriology, 3w	3 hrs.
Military	1 hr.	Military	1 hr.
Physical training	½ hr.	Physical training	½ hr.

SOPHOMORES

<i>Fall Term</i>		<i>Winter Term</i>	
General physics, 1f	5 hrs.	Dairy husbandry, 1w	3 hrs.
Analy. chemistry, 25f	5 hrs.	Farm crops, 1w	5 hrs.
Entomology, 2f	3 hrs.	Phys. geology, 2w	3 hrs.
Rural economics, 2f	3 hrs.	Poultry husbandry, 2w	3 hrs.
Military	1 hr.	Exper. psychology, 10w	2 hrs.
		Military	1 hr.

JUNIORS

<i>Fall Term</i>		<i>Winter Term</i>	
Educ., 102f	3 hrs.	Education, 150w	3 hrs.
Agr. chemistry, 1f	3 hrs.	Education, 167w	3 hrs.
Soils, 1f	5 hrs.	Rural economics, 100w	2 hrs.
Education, 169f	2 hrs.	Rural economics, 101w	3 hrs.
Education, 166f	3 hrs.	Sociology, 115w	2 hrs.
		Farm shop, 104w	3 hrs.

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SENIORS

A minimum of 5 hours during the senior year must be devoted to supervised practice teaching in an approved secondary school.

C. FOUR-YEAR CURRICULUM IN AGRICULTURE AND HOME ECONOMICS FOR WOMEN

The curriculum in agriculture and home economics for women emphasizes those phases of instruction in agriculture and home economics of special significance to the women primarily interested in agriculture. It is arranged to train women for positions of leadership and responsibility in home life, the teaching profession, and is especially adapted to the needs of women who expect to engage in extension work in home economics. The degree of Bachelor of Science in Agriculture is conferred upon completion of the required work.

Required Work: The student must complete a total of 120 hours in addition to the requirements in physical training. Of the total number of hours, 64 hours are fixed requirements as shown in the curriculum, 30 hours are major electives to be selected as indicated below, and 26 hours are free electives.

CURRICULUM

FRESHMEN

<i>Fall Term</i>	<i>Winter Term</i>
Chemistry, 4f and 6f .....6 hrs.	Botany, 1w .....5 hrs.
English, 1 .....3 hrs.	Chemistry, 25w .....5 hrs.
Horticulture, 2f .....2 hrs.	English, 1 .....3 hrs.
Home economics, 1f .....5 hrs.	Horticulture, 3w .....3 hrs.
Physical training .....½ hr.	Physical training .....½ hr.

SOPHOMORES

<i>Fall Term</i>	<i>Winter Term</i>
Botany, 3f .....3 hrs.	English .....2 hrs.
Chemistry, 15f .....3 hrs.	Home economics, 52 .....2 hrs.
English .....2 hrs.	Home economics, 11w .....2 hrs.
Home economics, 10f .....2 hrs.	Physiology, 1w .....5 hrs.
Home economics, 52 .....2 hrs.	Rural economics, 2w .....3 hrs.
Preventive medicine, 1f ....2 hrs.	Physical training .....½ hr.
Physical training .....½ hr.	Elective .....1 hr.
Elective .....1 hr.	

JUNIORS

<i>Fall Term</i>	<i>Winter Term</i>
Sociology, 115f .....2 hrs.	Dairy husbandry, 1w .....3 hrs.
Elective .....13 hrs.	Elective .....12 hrs.

SENIORS

<i>Fall Term</i>	<i>Winter Term</i>
Elective .....15 hrs.	Elective .....15 hrs.

Major electives (30 hours): Students are required to select one of the three following groups of courses as a major elective.

(1) The plant group, which includes courses in botany, farm crops, horticulture, soils and entomology not prescribed in the curriculum.

(2) The animal group, which includes courses in zoology, animal husbandry, dairy husbandry, poultry husbandry and veterinary science not prescribed in the curriculum.

(3) The home economics group, in which the 30 hours must be chosen from one of the following lines of specialization:

A. THE FARM HOME

Home economics other than courses prescribed.....	18 hrs.
Animal husbandry, 5f	1 hr.
Any home economics or technical agricultural courses not prescribed	11 hrs.

B. VOCATIONAL HOME ECONOMICS TEACHING

Home economics other than courses prescribed.....	19 hrs.
Manual arts, 50; or theory and practice of art, 2f.....	5 hrs.
Animal husbandry, 5f	1 hr.
Theory and design, 10w	5 hrs.

Of the 26 hours remaining, 15 must be given to the courses in education prescribed in the curriculum for training teachers in vocational home economics. (See page).

C. HOME ECONOMICS EXTENSION

Home Economics other than courses prescribed	16 hrs.
Education, 102f (Ed. Psychology)	4 hrs.
Education, 130f (Theory of Teaching)	3 hrs.
English, 75f (Public Speaking)	2 hrs.
Home Economics, 170f (Methods of Ext. Teaching in Home Economics)	2 hrs.

It is recommended that a part of the 26 hours of free electives be chosen from technical agricultural subjects.

D. FIVE-YEAR CURRICULUM IN FORESTRY

The five-year curriculum in forestry educates and trains men for the profession of forestry. Graduates are fitted for service in the utilization and management of woodlands and forests, both private and public.

Nature of the Curriculum: The first six terms of work are devoted primarily to the sciences underlying the profession, altho an early introduction is given to the principles and purposes of forestry. Fundamental principles are first studied in the University,

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then the application of these principles is carried out on the University forests in the Ozark region. There are six of these forests with an aggregate area of 50,000 acres. Their entire administration is in the hands of a member of the faculty in the department of forestry. During the spring-summer term of the University a forest camp is conducted in one of these forests.

During the last term of the fifth year of the course, students will make detailed plans for the management and logging of some allotted part of these forests.

CURRICULUM IN FORESTRY

FIRST YEAR

<i>Fall Term</i>		<i>Winter Term</i>	
English, 1	.....3 hrs.	English, 2	.....3 hrs.
Botany, 1	.....5 hrs.	Botany, 100	.....5 hrs.
Physics, 1	.....5 hrs.	Chemistry, 6	.....5 hrs.
Forestry, 10, dendrology	...3 hrs.	Forestry, 12, biological	
Military science	.....1 hr.	dendrology	.....3 hrs.
Physical training	.....½ hr.	Military science	.....1 hr.
	<hr/>	Physical training	.....½ hr.
	17½ hrs.		<hr/>
			17½ hrs.

SECOND YEAR

Mathematics, 2	.....5 hrs.	Mathematics, 4	.....5 hrs.
Geology	.....5 hrs.	Zoology, 1	.....3 hrs.
Civil engineering, 102	...3 hrs.	Mechanical drawing, 1	...2 hrs.
Chemistry, 15	.....3 hrs.	Forestry, 13, descriptive	
Military science	.....1 hr.	dendrology	.....3 hrs.
	<hr/>	Military science	.....1 hr.
	17 hrs.	Elective	.....3 hrs.
			<hr/>
			17 hrs.

THIRD YEAR

Economics, 1	.....5 hrs.	American government	.....5 hrs.
Geology, 110	.....3 hrs.	Botany	.....3 hrs.
Forestry, 121, mensuration	...3 hrs.	Forestry, 120, silviculture	...5 hrs.
Economics and Commerce	17	Elective	.....3 hrs.
elementary accounting	...3 hrs.		<hr/>
Elective	.....2 hrs.		16 hrs.
	<hr/>		
	16 hrs.		

SUMMER CAMP

Spring-Summer Term

Forestry 124, silvicultural praxis	.....5 hrs.
Forestry 125, mensuration	.....3 hrs.
Forestry 126, lumbering	.....3 hrs.

Botany 108, tree diseases	3 hrs.
Entomology 105, forest entomology	2 hrs.

 16 hrs.

FOURTH YEAR

Forestry, 122, forest engineering	5 hrs.	Civil engineering, 107.....	3 hrs.
Forestry, 127, forest products	2 hrs.	Forestry, 132, wood technology	4 hrs.
Forestry, 128, lumber trade	1 hr.	Forestry, 133, seeding and planting	3 hrs.
Forestry, 129, forest economics	3 hrs.	Animal husbandry, grazing	3 hrs.
Elective	5 hrs.	Elective	3 hrs.
<hr/>		<hr/>	
16 hrs.		16 hrs.	

FIFTH YEAR

Forestry, 200, policy and law	5 hrs.	Forestry, 206, forestry history	1 hr.
Forestry, 201, forest organization	5 hrs.	Forestry, 207, forest administration	1 hr.
Forestry, 202, forest valuation	3 hrs.	Forestry, 208	8 hrs.
Elective	3 hrs.	Elective	6 hrs.
<hr/>		<hr/>	
16 hrs.		16 hrs.	

Since most of the subjects outlined in the first two years of the curriculum are pursued in the College of Arts and Science, students who have completed sixty credit hours in that college may be admitted in forestry at the beginning of the third year. It is possible for graduates of collegiate institutions to complete the technical forestry courses and receive the Master's degree in four terms. The summer courses will be required of these men after two terms' work at Columbia. Their under graduate work should include the following courses:

Two years of college botany and at least one college course in chemistry, geology, economics, American government, physics, zoology, mathematics thru trigonometry.

Degrees: The degree of Master of Forestry is conferred on those students who have fulfilled all the requirements of the five-year curriculum. The degree of Bachelor of Science in Forestry is conferred on those students who have fulfilled all the requirements in the curriculum in forestry to the end of the fourth year.

This announcement covers the courses of the three terms of the 1919-1920 session.

Courses for underclassmen are indicated by numbers below 100; courses for upperclassmen and graduates, numbers 100-199; courses primarily for graduates, number 200-299. Those designated by a number with the letter f attached, thus; 100f, 200f, are given

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the fall term only. Those designated by the letter w, thus: 100w, 200w, are given the winter term only. Those designated by the letters s, thus: 100s, 200s, run through the whole spring and summer term; those with sp are given the first half of the spring and summer term, and those with sm are given the last half of the term. Arabic numerals in parenthesis indicate the number of hours' credit a term.

Courses listed below are in the four-year curriculum in agriculture for men, four-year curriculum in agriculture for women, and the five-year curriculum in forestry.

AGRICULTURAL CHEMISTRY

1f, w, and s. **Agricultural Analysis.** (3) MR. MOULTON.

2f, w, and s. **Food Analysis.** (3) MR. MOULTON.

101f, w, and s. **Advanced Agricultural Analysis.** (3) to (5) MR. MOULTON; MR. HAIGH.

200f, 201w, and 202s. **Seminary.** (1) MR. MOULTON.

203w. **Chemistry of the Proteins.** A critical study of the composition and classification and of the decomposition products of the animal vegetable proteins. Lectures and recitations.

203w. **Chemistry of the Proteins.** (3) MR. MOULTON.

204f. **Physiological Chemistry of the Domestic Animal.** (3) MR. PALMER.

205f, 206w, and 207s. **Research.** MR. MOULTON; MR. HAIGH; MR. PALMER.

AGRICULTURAL ENGINEERING

The courses offered by this department, which is administered jointly by the deans of the College of Agriculture and the School of Engineering, are primarily to meet the needs of the agricultural student desiring some knowledge of mechanics as applied to farm work. The demand, however, for men thoroly trained in engineering as applied to different phases of agriculture has become so great that a special agricultural engineering curriculum has been arranged which appears in the announcement made by the School of Engineering.

This curriculum is designed to fit men for professional work in that line of engineering where an agricultural viewpoint is necessary, such as problems in drainage and irrigation, planning farm buildings, and design of farm machinery. It will fit men for government and teaching positions, to be experts and salesmen with farm machinery manufacturers and will prepare them to take charge of large farms where engineering applications in agriculture are important factors.

The following courses are arranged for regular agricultural students:

- 1w. Farm Buildings. (4) MR. LEHMANN.
- 2f, w, and sm. Farm Machinery and Farm Motors. (3) MR. LEHMANN.
- 4f. Construction Methods. (2) MR. LEHMANN.
- 5w. Rural Sanitation. (2) MR. LEHMANN.
- 6f and sm. Farm Surveying and Drainage. (3) MR. LEHMANN.
- 100f, 101w, and 102sm. Special Problems. (2-5) MR. LEHMANN.
- 103f. Farm Motors. (2) MR. LEHMANN.
- 104w and sm. Farm Shop Work. (3) MR. LEHMANN.
- 105sm. Agricultural Handicraft for Rural Teachers. (3) MR. LEHMANN.

ANIMAL HUSBANDRY

- 1f, w, and sm. Types and Market Classes of Live Stock. (3) MR. ALLISON; MR. THOMSON.
- 2f. Breeds of Live Stock. (3) MR. ALLISON.
- 3w and s. Live Stock Judging. (3) MR. WEAVER.
- 4f and w. Slaughtering of Domestic Animals and Cutting and Curing of Meats. (2) MR. ———.
- 100f and s. Animal Nutrition. (3) MR. ALLISON.
- 101w. Animal Breeding. (3) MR. TROWBRIDGE.
- 102f. Advanced Live Stock Judging. (3) MR. WEAVER.
- 103w. Beef Production. (3) MR. ALLISON.
- 104w. Sheep Production. (2) MR. ———.
- 105w. Pork Production. (2) may be extended to (3). MR. WEAVER.
- 106w. Horse Production. (2) MR. TROWBRIDGE.
- 107w. Stock Farm Management. (2) MR. TROWBRIDGE.
- 108w. Grazing. MR. ALLISON.
- 200f and 210w. Seminar. MR. TROWBRIDGE.
- 202f, 203w, and 204s. Research in Animal Husbandry. MR. TROWBRIDGE; MR. ALLISON.
- 205f, 206w, and 207s. Animal Breeding. MR. MUMFORD.
- 208f, 209w, and 210s. Animal Nutrition. MR. ALLISON.

AGRICULTURAL LAW

1w. Legal Problems of the Farmer. A course designed to acquaint the student with some of the legal problems which are likely to confront the farmer. It includes such matters as contracts in buying or leasing land, contracts with laborers, deeds, abstracts of title, drainage and road laws, liabilities for trespass, duties of common carriers and insurance. Offered during the first eight weeks of the term. (2) MR. CURTIS.

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EDUCATION (AGRICULTURAL)

102f. **Educational Psychology.** Prerequisite, experimental psychology 1 or 10. An introduction to the science of education. An application of the methods and results of experimental psychology to the problem of training children. Lectures and laboratory. (3) Ed. and Ag. MR. PYLE.

150w. **Theory and Observation of Teaching.** A study of methods of class work with illustrations and observations in all grades of public school work. (3) Ed. and Ag. MR. WATKINS; MR. ———.

155f, 156w, 157sp, and 158sm. **Practice Teaching of Vocational Agriculture.** Hours and credits must be arranged with instructor before registration. Application should be made in the term preceding that in which the course is wanted. This course is approved for credit under the Smith-Hughes Act. (Credit to be arranged). Ed. and Ag. MR. MERIAM; MR. SEXAUER.

166f and sm. **Methods of Teaching Vocational Agriculture. (Plant Husbandry)** A course having to do with the methods of teaching plant husbandry in high schools, emphasis being placed on the practical side. Approved for credit under the Smith-Hughes Act. (3) Ed. and Ag. MR. SEXAUER.

167w and sm. **Methods of Teaching Vocational Agriculture. (Animal Husbandry)** A course dealing with the aims and methods of teaching animal husbandry in secondary schools. Plans for organizing high school courses in this subject will be discussed in detail. Approved for credit under the Smith-Hughes Act. (3) Ed. and Ag. MR. ———.

169f and sm. **Organization and Administration of Vocational Agriculture.** This course deals with the history, organization, and administration of agricultural education, with particular reference to vocational agriculture. Approved for credit under the Smith-Hughes Act. (2) Ed. and Ag. MR. SEXAUER.

171w and sm. **Special Problems.** Discussions and presentations of papers on assigned topics having to do with agricultural education. Open to students specializing in vocational agriculture. (1) Ed. and Ag. MR. SEXAUER.

266f, w. and s. **Seminary.** Investigations in the field of agricultural education. MR. SEXAUER.

For additional courses in education, see general calendar.

CIVIL ENGINEERING

103f. **Farm Surveying and Drainage.** (3)

136w. **Cement and Concrete Construction.** (2)

159f. **Country Roads.** (1)

MANUAL ARTS

- 1f and w. Woodwork. (2)
 1sp and sm. Woodwork. (1)
 2f and w. Metal Work. (2)
 2sp and sm. Metal Work. (1)
 5f. Tools and Materials. (1)
 8sm. Woodwork. (1)
 9sm. Metal Work. (1)

BOTANY

- 1f, w, sp, and sm. General Botany. (5)
 3f, w, sp, and sm. General Bacteriology. (3)
 100w. Plant Physiology. (5)
 102f. Plant Pathology. (3)

CHEMISTRY

- 4f, w, sp, and sm. Elementary Inorganic Chemistry. (5)
 6f and s. General Inorganic Chemistry. (5)
 15f, w, sp, and sm. Organic Chemistry. (3)
 25f, w, and sp. Analytical Chemistry. (5)

DAIRY HUSBANDRY

- 1f, w, and s. Elements of Dairying. (3) MR. COMES; MR. SWETT;
 MR. FOHRMAN; MR. ———.
 100w. Milk Production. (4) MR. RAGSDALE; MR. SWETT; MR.
 FOHRMAN.
 101w. Dairy Feeding. (1) MR. RAGSDALE.
 102f and w. Dairy Bacteriology. (4) MR. ———
 103w. Market Milk. (4) MR. ———
 104f and w. Dairy Products. (5) MR. COMBS; MR. ———
 105w. Dairy Chemistry. (3) MR. PALMER.
 201f, 202w, and 203s. Seminar. (1) MR. RAGSDALE; MR. SWETT.
 204f, 205w, and 206s. Research in Dairy Husbandry. MR. RAGS-
 DALE; MR. SWETT.
 207f and 208w. Special Investigation in Composition of Milk.
 MR. PALMER.
 209f and 210w. Dairy Manufactures. MR. COMBS.

ENGLISH

- 1f, w, sp, sm, and 2f, w, sp, sm. Composition and Rhetoric. (3)

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ENTOMOLOGY

- 2f, w, sp, and sm. Elementary Entomology. (3) MR. HASEMAN; MR. SULLIVAN; MR. ———.
- 103w. Insect Anatomy. (2) MR. HASEMAN.
- 104f. Classification of Insects. (2) MR. SULLIVAN.
- 105sp. Forest Entomology. (2) MR. HASEMAN; MR. SULLIVAN.
- 109f, sp, and sm. Beekeeping. (2) MR. HASEMAN; MR. SULLIVAN.
- 110w and s. Insects of the House, Garden, and Home Premises.
- (2) Lectures and field work. MR. SULLIVAN; MR. ———.
- 11f. Insects of Field Crops. (2) MR. HASEMAN.
- 11sw. Insects of Live Stock and Poultry. (2) MR. SULLIVAN; MR. ———.
- 113f. Insects of the Orchard and Truck Crops. (2) MR. SULLIVAN.
- 114f. Field Practices in Insect Control. (2) MR. HASEMAN; MR. ———.
- 115w. Relation of Insects to Disease. (3) MR. HASEMAN; MR. SULLIVAN.
- 116f. Morphology, Histology, and Development of Insects. (3) MR. HASEMAN.
- 200f, 210w, and 202s. Research. MR. HASEMAN.
- 203f and 204w. Seminar. (1) MR. HASEMAN; MR. SULLIVAN.

FARM CROPS

- 1f, w, and sm. Farm Crops. (5) MR. ETHERIDGE; MR. McDONALD.
- 2w. Field Crop Management. (2) MR. HELM.
- 101w. Cereal Crops. (5) MR. ETHERIDGE.
- 102f. Forage Crops. (5) MR. HELM.
- 103f. Fiber Crops. (2) MR. ETHERIDGE.
- 104f. Field Crop Improvement. (3) MR. McDONALD.
- 105f, 106w, and 107s. Special Problems. MR. ETHERIDGE; MR. McDONALD; MR. HELM.
- 201f, 202w, and 203s. Research. MR. ETHERIDGE.
- 204f and 205w. Seminar. (1) MR. ETHERIDGE.

FARM MANAGEMENT

Students specializing in farm management are recommended to take, in so far as possible, the following elective subjects in other departments in advance of, or in connection with, their farm management work: In animal husbandry, courses 102f, 103w, 104w, 105w, and 106w; in agricultural engineering, course 2f and w; in dairy husbandry, course 100w; in farm crops, courses 2w and 102f;

in horticulture, courses 113w and 114f; in rural economics, courses 2f, 100f, and 101f; in soils, course 2w; in veterinary science, course 104f and 105w. Students specializing in farm management with a view to taking over the practical management of a farm should confer with instructors in the department early in their course so as to arrange for special work in course 151f and 152w.

105f, w, and sm. **Farm Accounts.** (3) MR. GREEN.

110w and sm. **Farm Organization.** (3) MR. GREEN.

112f. **Farm Management Survey Methods.** (2) MR. GREEN.

113w and s. **Farm Administration.** (2) MR. JOHNSON.

151f, 152w, and 153s. **Special Problems in Farm Administration.**

MR. JOHNSON; MR. GREEN.

200f, 201w, and 202s. **Seminar.** MR. JOHNSON; MR. GREEN.

203f and 204w. **Investigation of systems of Farm Organization and Farm Practices.** MR. JOHNSON; MR. GREEN.

FORESTRY

Candidates for the first degree in forestry are required to take all undergraduate courses in forestry excepting only courses 2, and 130. In general, the earlier courses are prerequisite to the later. The sequence of the curriculum is recommended and departure from it will not be encouraged.

2f. **General Forestry.** (3) MR. PEGG.

10f. **Dendrology.** (3) MR. PEGG.

12w. **Biological Dendrology.** (3) MR. DUNLAP.

14w. **Descriptive Dendrology.** (3) MR. DUNLAP.

120w. **Silviculture.** (5) MR. DUNLAP.

121f. **Forest Mensuration.** (3) MR. PEGG.

122f. **Forest Engineering and Milling.** (5) MR. PEGG.

124s. **Silvicultural Praxis.** (5) MR. DUNLAP.

125s. **Mensuration.** (3) MR. PEGG.

126s. **Lumbering.** (3) MR. PEGG.

127f. **Forest Products.** (2) MR. PEGG.

128f. **Lumber Trade.** (1) MR. PEGG.

129f. **Forest Economics.** (3) MR. DUNLAP.

130f. **Seminar in Silviculture.** (2) MR. DUNLAP.

132w. **Wood Technology.** (4) MR. DUNLAP.

133w. **Seeding and Planting.** (2) MR. DUNLAP.

200w. **Policy and Law.** (5) MR. DUNLAP.

201f. **Forest Organization.** (5) MR. PEGG.

202f. **Forest Valuation.** (3) MR. PEGG.

203f. **Lumbering.** (5) MR. PEGG.

206f. **History of Forestry.** (1) MR. DUNLAP.

207f. **Forest Administration.** (1) MR. DUNLAP.

208w. **Forest Plans.** (8) MR. PEGG.

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GEOLOGY

2f and sp. Physical Geology. (3) MR. BRATTON; MR. CONNOLLY; MR. MARKHAM.

HOME ECONOMICS

1f and w. Selection and Preparation of Food. ($2\frac{1}{2}$) MISS SPAULDING.

10f. Household Problems. (2) MISS STANLEY.

11w, sp, and sm. Food Problems of the Household. (2) MISS

20w. Dietetics for Nurses. (2) MISS ———.

50f and 21w. Elementary Clothing. (3) MISS CATON.

50sp. Elementary Clothing. (3) MISS CATON.

51sm. Elementary Clothing. (3) MISS CATON.

52w and sm. Principles of Selection and Construction of Clothing. (4) MISS CATON.

55sm. Millinery. (2) MISS CATON.

60f, w, s, and sm. Home Nursing. (2) MISS FRANKLIN.

101f. House Sanitation. (3) MISS NAYLOR.

101sp. House Sanitation. ($2\frac{1}{2}$) MISS NAYLOR.

110w. House Planning and Furnishing. (3) MISS GLEASON.

110sp. House Planning and Furnishing. ($2\frac{1}{2}$) MISS GLEASON.

115f and w. Household Management. (3) MISS NAYLOR.

115sp and sm. Household Management. ($2\frac{1}{2}$) MISS NAYLOR.

120f and s. Food and Nutrition. (5) MISS ———.

120sm. Food and Nutrition. ($2\frac{1}{2}$) MISS ———.

121w. Dietetics. (3) MISS ———.

129sm and w. Teaching of Applied Art. (2) MISS GLEASON.

130f. Metabolism and Dietetics. (5) MISS STANLEY.

150f, 150w, and 150sp. The Clothing Problem. (5) MISS CATON.

151sm. Advanced Clothing. (5) MISS GLEASON.

152w and sm. Teaching of Vocational Home Economics. (2) MISS NAYLOR.

170f. Methods of Extension Teaching in Home Economics.

175f and w. Extension Practice Teaching in Home Economics.

200f. Home Economics Seminar. (1) MISS STANLEY.

205f and 206w. Research in Food Preparation. MISS STANLEY.

220f and 221w. Problems in Nutrition. MISS STANLEY.

250f and 251w. Research in Clothing. MISS GLEASON.

HORTICULTURE

1f, w, and sm. General Horticulture. (3) MR. TALBERT; MR. MAJOR; MR. ROSA.

3w. Vegetable Gardening. (3) MR. ROSA.

- 4f and 5w. Floriculture. (4) MR. MAJOR.
 100f. General Pomology. (2) or (3) MR. TALBERT.
 101w. General Pomology. (2) or (3) MR. TALBERT; MR. GARDNER.
 102f. Elements of Landscape Gardening. (5) MR. MAJOR.
 103f. Horticultural By-Products. (3) MR. ROSA.
 105f. Systematic Pomology. (3) MR. GARDNER.
 106f. Commercial Vegetable Growing. (3) MR. ROSA.
 107f. Plant Material. (2) MR. MAJOR.
 108w and sp. Plant Material. (3) MR. MAJOR.
 112w. Advanced Landscape Design. (3) MR. MAJOR.
 113w. Spraying. (2) MR. TALBERT.
 114f and s. Fruit Handling. (3) MR. TALBERT; MR. SWARTWOUT.
 115w. Evolution of Cultivated Plants. (3) MR. GARDNER; MR. TALBERT.
 116f, 117w, and 118s. Special Problems. Hours by appointment, MR. GARDNER; MR. TALBERT; MR. HOOKER; MR. ROSA; MR. MAJOR.
 119w. Vegetable Forcing. (3) MR. ROSA.
 120s. Marketing Vegetable Crops. (3) MR. ROSA.
 122f. Fruit Varieties. (2) MR. SWARTWOUT.
 130w. History and Literature of Horticulture. (2) MR. GARDNER.
 200f, 201w, and 202s. Special Investigations. Hours by appointment. MR. GARDNER; MR. TALBERT; MR. HOOKER; MR. ROSA; MR. MAJOR.
 210f. Methods of Horticultural Research. (2) MR. HOOKER.
 211w. Methods of Horticultural Extension. (1) MR. TALBERT.
 215f and 216w. Seminar. (1) MR. HOOKER; MR. GARDNER.

JOURNALISM

- 127f and w. Agricultural Journalism. (3)

METEOROLOGY

- 1w. Meteorology. (1) MR. REEDER.

PHYSICS

- 1f, w, sp, and sm. Elementary Physics. (5)

POULTRY HUSBANDRY

- 1f and sm. Elementary Poultry Raising. (3) MR. KEMPSTER; MR. HERVEY.
 2w, s, and sm. Elementary Poultry Raising. (3) MR. KEMPSTER; MR. HERVEY.

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- 103f. Marketing Poultry Products. (3) MR. KEMPSTER.
104f. Poultry Judging and Breeding. (3) MR. HERVEY.
105w. Poultry Farm Management. (3) MR. KEMPSTER.
106w. Incubating and Brooding Practice. (3) MR. KEMPSTER;
MR. HERVEY.
200f and 201w. Seminar. (1) MR. KEMPSTER.
202f, 203w, and 204s. Research in Poultry Husbandry. MR.
KEMPSTER.

RURAL ECONOMICS

- 2f, w, and sp. Principles of Economics. (3) MR. GROMER.
100f, w, and sp. Principles of Rural Economics. (2) MR.
GROMER.
101f, w, and sp. Rural Organization and Marketing. (3) MR.
GROMER.
102f and sp. European and American Agrarian History and
Agrarian Policy. (2) MR. GROMER.
200w and 201sp. Seminar. Credit to be arranged. MR. GROMER.

RURAL SOCIOLOGY

- 115f. Rural Sociology. (2) MR. TAYLOR.
115sp. Rural Sociology. (2½) MR. TAYLOR.
222w. Special Investigation and Research. (2) MR. TAYLOR.

SOILS

- 1f, w, and sm. Soil Physics and Soil Fertility. (5) MR. MIL-
LER; MR. HUDELSON.
2w and sm. Soil Management. (3) MR. MILLER.
101f and s. Advanced Soil Fertility. (3) MR. MILLER; MR.
HUDELSON.
102w. Soil Surveying. (2) MR. KRUSEKOPF.
104f. Soils of the United States. (2) MR. MILLER.
105w. Soil Bacteriology. (3) MR. ALBRECHT.
106f, 107w, and 108s. Special Problems. (2-5) MR. MILLER; MR.
HUDELSON; MR. ALBRECHT.
200f and 2101w. Seminar. (1) MR. MILLER.
205f, 206w, and 207s. Soil Research. MR. MILLER; MR. HUDEL-
SON; MR. ALBRECHT.

VETERINARY SCIENCE

- 1f. Veterinary Anatomy and Physiology. (5) MR. CONNAWAY;
MR. BACKUS.
2w. Veterinary Medicine and Surgery. (3) MR. BACKUS.

- 104f and s. Stock Farm Sanitation and Disease Prevention.
(3) MR. CONNAWAY; MR. DURANT; MR. CRISLER.
105w. Stock Farm Sanitation and Disease Prevention. (3)
106f. Diseases of Poultry. (1) MR. DURANT.
207f, 208w, and 209s. Research. Hours by arrangement.
MR. CONNAWAY; MR. BACKUS; MR. DURANT.

ZOOLOGY

1f, w, sp, and sm. General Zoology. (5).

For further information regarding the Four-Year Curriculum in Agriculture for Men, the Four-Year Curriculum for the Training of Teachers of Vocational Agriculture, the Four-Year Curriculum in Agriculture and Home Economics for Women or the Five-Year Curriculum in Forestry write to

F. B. MUMFORD,
DEAN, FACULTY OF AGRICULTURE,
UNIVERSITY OF MISSOURI,
COLUMBIA, MISSOURI.

E. TWO-YEAR WINTER COURSE IN AGRICULTURE

SHORT COURSE

GENERAL STATEMENT

The purpose of the two-year winter course in agriculture, which is more often called the Short Course, is to teach better farming methods and to develop a better knowledge of the business of farming. It is essentially a practical course for practical farmers. More than 2800 young men and women have enrolled in this course and each of these has become a better farmer by reason of the instruction obtained. At present, more than 200 men and women annually enroll in this course. They come from nearly every county in Missouri and from many adjoining states.

The short winter course gives the largest possible amount of practical instruction in judging, breeding, and growing corn and other grains and forages; in soil fertility, farm crops, and farm buildings; in live stock judging, stock feeding, animal breeding, and live stock farming; in growing, handling, and selling orchard products; in breeding, feeding and handling dairy cows; in making ice cream, butter and cheese, and handling milk products; in farm butchering and meat curing, in diseases of farm animals and their treatment; in injurious insects; in farm carpentry and blacksmith-

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ing, and handling farm machinery, tractors, and gas engines; in poultry raising; in farm management; in the keeping of farm accounts; and in rural problems, cooperation, etc.

Admission: Any person more than 16 years old may enroll for instruction in the two-year winter course. No entrance examinations are given, but those admitted are supposed to have at least the equivalent of a common school education before entering. The work given is so flexible that many persons of mature years and much experience have found it profitable to attend this course along with young men and women not yet out of their teens. It is not uncommon to find a boy of 18 years attending classes along with a matured and successful farmer more than 40 years old. Sometimes father and son both attend the course.

Time: The two-year winter course is arranged for the convenience of farmers. All of the work comes in November, December, January, and February. One can work on the farm eight months of the year and go to the short course the other four.

The course is divided into four terms. Two terms are offered each year. Each term is eight weeks long. The first term of the short course begins Monday, October 27, 1919, and the second term, Wednesday, December 31, 1919.

Each of the four terms is complete within itself. All the subjects taught in each term are finished at the end of the term, so that each term is a complete eight weeks' short course. Students can enter in November or January, whichever is most convenient.

Expenses: Students in the two-year winter course pay no tuition. An incidental fee of \$7.50 a term is required of all students, and a laboratory fee in those departments in which the students use materials. Board and room with private families will cost from \$6 to \$8 a week.

The cost for books and stationery will be small, amounting to about \$9 a term. Most of the instruction is given by lectures and demonstration. Books, however, are recommended, and it is desirable that the winter course students add to their libraries by the purchase of a few standard books on agriculture. The entire cost of an eight weeks' term need not exceed \$85, not including railroad fare.

Certificate: Students who complete the required work of the two-year winter course will be given a certificate of graduation.

THE COURSE OF STUDY

In each term the student is required to take certain subjects. In addition to those required, he is permitted to choose one or more of the optional subjects open to him during that term. The required and optional subjects for each term are listed on the following pages. In

each term the required subjects cover fairly generally the branches of agriculture practiced on Missouri farms. The student may then choose from the optional subjects those relating to the phases of farming in which he is most interested. A student does not have a full course unless he takes all the required subjects and the full number of optional subjects indicated for each term.

Attention is directed to the fact that one may study along five special lines of farming by proper selection of the optional subjects during the four terms of the Two-Year Winter Course. He may train himself for the pure bred live stock business, the pure seed growing business, fruit growing, poultry raising or dairying. The teachers who assist in registration are prepared to advise students in the selection of optional courses.

If a student enters the University October 27, 1919, for the first time, he will take the courses under *First Year, First Term*. If he returns December 31, 1919, he will take the courses under *First Year, Second Term*. If a student cannot enter at the opening of the course on October 27, 1919, he can enter without much inconvenience for the first time, Wednesday, December 31, 1919. If he enters then he will take the courses listed under *First Year, Second Term*, arranged especially for those who enter then for the first time and outlined on page 46. This is the same course taken by those who entered for the first time at the beginning of the first term except that a course in stock judging adapted to the beginner is given, and the poultry course required of all students in the first term is included.

If he returns for the term of 1920, he will then take the *First Year, First Term* courses. Those who have completed both terms of the first year will enter the *Second Year, First Term*.

All the work is thoroly practical. Much of the instruction is given by having students actually do the work under proper direction. The course is being definitely connected up with the Agricultural Extension Service of the University. It is planned to have the student continue his study of agricultural problems on his home farm when he leaves the short course. He will do this as a cooperator or demonstrator for the Agricultural Extension Service working under the direction of some of the extension workers.

FIRST YEAR, FIRST TERM

October 27, to December 20, 1919

(Required)

	Periods a week
Cereal Crops and Grain Judging	6
Farm Dairying or Orchard Management.....	4
Judging Market Grades and Classes of Live Stock.....	3

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Feeds and Feeding	5
Farm Poultry Management	3
(And at least one of the following optional subjects.)	
Woodworking	3
Forging	3
Fruit Packing	3
Farm Beekeeping	3
House Framing	3
Advanced Forging	3

FIRST YEAR, SECOND TERM

December 31, 1919 to February 27, 1920

(Required)

	Periods a week
Prevention and Treatment of Animal Diseases	4
Farm Dairying or Orchard Management	4
Judging Types and Breeds of Farm Animals	3
Soil Tillage	3
Animal Breeding	3
Forage Crops	4
(And at least one of the following optional subjects.)	
Woodworking	3
Forging	3
Spraying	3
Dairy Cattle Judging	1
Poultry Judging	3
Beef Production	3
Pork Production	3
Barn Framing	3
Advanced Forging	3

SECOND YEAR, FIRST TERM

October 27, to December 20, 1919

(Required)

	Periods a week
Injurious and Beneficial Insects	4
Infectious Diseases and Farm Sanitation	3
Farm Accounts	5
Soil Fertility, Manures and Fertilizers	3

(And at least three of the following optional subjects.)

Fruit Packing	3
Commercial Orchardng	3
Breeds of Live Stock	3
Farm Poultry Practice	3
Farm Construction Methods	4
Horse Production	3
Sheep Production	3
Crop Rotations	3
Rural Economics	3
Advanced Forging	3
House Framing	3
Woodworking	3
Forging	3

SECOND YEAR, SECOND TERM

December 31, 1919 to February 27, 1920

(Required)

	Periods a week
Vegetable Gardening	4
General Farm Management	3
Milk Production	3
Farm Machinery and Engines	4
(And at least three of the following optional subjects.)	
Advanced Grain Judging	3
Advanced Stock Judging	3
Spraying	3
Landscape Gardening	3
Incubation and Brooding Practice	3
Production of Pure-Bred Farm Seeds	3
Soil Management	3
Farm Butchering, Cutting, and Curing of Meat	3
Co-operative Banking	3
Dairy Sanitation	3
Agricultural Law	2
Woodworking	3
Forging	3
Barn Framing	3
Advanced Forging	3

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FIRST YEAR, SECOND TERM

December 31, 1919 to February 27, 1920

For those who enter for the first time at the beginning of the second term

(Required)

	Periods a week
Prevention and Treatment of Animal Diseases	4
Orchard Management or Farm Dairying	4
Judging Market Grades and Classes of Live Stock	3
Soil Tillage	3
Animal Breeding	3
Forage Crops	4
Farm Poultry Management	3
(And one of the following optional subjects.)	
Dairy Cattle Judging	1
Woodworking	3
Forging	3
Spraying	3
Barn Framing	3
Advanced Forging	3

F. SHORT COURSE FOR WOMEN

The Short Course for Women lasts eight weeks. It begins Wednesday, October 27, 1919, and ends December 20, 1919. The time corresponds to the first term of the Two-Year Winter Course. Work is given in those subjects with which a woman as a practical home-maker should be familiar. Economy in the management of household affairs is the keynote of the whole course. The student learns how to save material, time, and labor. The course offers the kind of knowledge which a woman can apply in her every-day housework and relations to the farm. In addition to the courses in home economics, practically all the work offered in the Two-Year Winter Course for men is open to women who desire to elect any of these courses

Entrance Requirements. Any woman more than 16 years old may attend. Older women who have had the care and responsibility of managing a house will find much that will interest them, and, because of their experience, they will derive even greater benefit from the course than girls who are less experienced. It is desirable that all students should have at least a common school education. There are no entrance examinations.

Fees and Expenses. There is no tuition fee, but each student pays an incidental fee of \$7.50. In the courses in food and preparation of meals there is a laboratory fee of \$2.50; in the canning and preserving courses, \$1; and in the sewing courses, a fee of 50 cents. Rooms may be had at from \$8 to \$14 a month. Where two persons occupy the same room, each pays about one-half the above sum. Board may be had at prices varying from \$4.50 to \$6 a week. The expenses while in Columbia need not exceed \$85.

STATEMENT OF STUDIES

Subject	Number of Lessons
1w. Preparation of Food	35
2w. Preparation of Food, 2	35
3w. Preparation of Meals	21
4w. Preparation of Meals, 2	21
5w. Canning and Preserving	14
6w. Sewing	21
7w. The Dress Problem	21
8w. Dressmaking	21
9w. Preventive Medicine	14
10w. Home Care of the Sick	14
11w. Art in Every Day Life	14
1aw. Farm Poultry Management	21
1aw. Farm Dairying	21
5aw. Vegetable Gardening	21
3aw. Farm Buttermaking	14

G. COURSE IN DAIRY MANUFACTURES

This course takes up the fundamental principles involved in the manufacture of creamery butter, ice cream and other products such as cottage cheese and cultured milk. The object of the course is to assist those who desire to prepare themselves for work in creameries, ice cream factories or city milk plants. It also fits a student for the successful operation of large private dairies where the manufacture of dairy products is an important feature. The demand for capable well trained men along these lines exceeds the supply. The course begins January 1, and ends February 28, 1920. Each student who enters this course must pay the usual library, hospital, and incidental fees of \$7.50. The laboratory fee for the course complete is \$6.

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OUTLINE OF THE COURSE

	Lectures	Laboratory periods
Elements of Dairying	14	14
Milk Production	21	0
Testing Dairy Products	0	21
Creamery Buttermaking	14	21
Ice Cream Making	14	14
Creamery Calculation	14	0
Dairy Sanitation	14	7
Dairy Mechanics	14	0
Dairy Cattle Judging	0	7
Inspection Trips .....	..	..

For further information concerning the short winter courses in agriculture write to

E. H. HUGHES,
SUPERINTENDENT OF SHORT COURSES,
UNIVERSITY OF MISSOURI,
COLUMBIA, Mo.

H. THE FARMERS' SHORT COURSE

In January each year the College of Agriculture offers a short course in agriculture for farmers in connection with the Farmers' Week program arranged in co-operation with the State Board of Agriculture, and the various agricultural associations of the state. In this course special lectures and demonstrations in soils, farm crops, animal husbandry, dairying, farm engineering, horticulture, farm management, entomology, rural economics, veterinary science, poultry farming and home economics are given in the classrooms, laboratories, and live stock pavilion belonging to the University.

For information regarding Farmers' Week and the Farmers' Short Course write to

A. J. MEYER,
DIRECTOR, AGRICULTURAL EXTENSION SERVICE,
COLLEGE OF AGRICULTURE,
COLUMBIA, Mo.

FACULTY OF THE COLLEGE OF AGRICULTURE

- ALBERT ROSS HILL, A. B., Ph. D., LL. D.
President of the University.
- FREDERICK BLACKMAR MUMFORD, B. S., M. S.
Professor of Animal Husbandry, Dean of the Faculty, Director of the Agricultural Experiment Station.
- EDWIN BAYER BRANSON, A. B., A. M., Ph. D.,
Professor of Geology.
- WILLIAM GEORGE BROWN, B. S., Ph. D.,
Professor of Technical Chemistry.
- SIDNEY CALVERT, B. Sc., A. M.
Professor of Organic Chemistry.
- JOHN WALDO CONNAWAY, D. V. S., M. D.,
Professor of Veterinary and Comparative Medicine, Veterinarian to the Agricultural Experiment Station.
- WINTERTOWN CONWAY CURTIS, A. B., A. M., Ph. D.,
Professor of Zoology.
- FREDERICK DUNLAP, F. E.,
Professor of Forestry, Forester to the Agricultural Experiment Station.
- WILLIAM CARLYLE ETHERIDGE, B. S. in Agr., M. S., Ph. D.,
Professor of Farm Crops.
- V. R. GARDNER, B. S. in Agr., M. S. A.,
Professor of Horticulture.
- IRA S. GRIFFITH, A. B.,
Professor of Manual Arts.
- LEONARD HASEMAN, Ph. D.,
Professor of Entomology.
- HARRY LAVERNE KEMPSTER, B. S.,
Professor of Poultry Husbandry.
- GEORGE LEFEVRE, A. B., Ph. D.,
Professor of Zoology.
- EMIL WILHELM LEHMANN, B. S. in E. E., E. E., B. S. in A. E.,
Professor of Agricultural Engineering.
- WALTER ERNEST MEANWELL, M. D. Dr. P. H.
Professor of Physical Education.
- ARTHUR JOHN MEYER, B. S. in Agr.,
Director of Agricultural Extension Service.
- MERRITT FINLEY MILLER, B. S. in Agr., M. S. A.,
Professor of Soils.
- CHARLES ROBERT MOULTON, B. S., M. S. in Agr., Ph. D.,
Professor of Agricultural Chemistry.
- ARTHUR CHESTER RAGSDALE, B. S. in Agr.,
Professor of Dairy Husbandry.
- PONTUS HENRY ROSS, B. S. in Agr.,
State Leader of County Agents.

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- HERMANN SCHLUNDT, B. S., M. S., Ph. D.,
Professor of Physical Chemistry.
- LOUISE STANLEY, B. S., B. Ed., A. M., Ph. D.,
Professor of Home Economics.
- OSCAR MILTON STEWART, Ph. D.,
Professor of Physics.
- EDWIN A. TROWBRIDGE, B. S. in Agr.,
Professor of Animal Husbandry.
- L. A. WEAVER, B. S. in Agr.,
Assistant Professor of Animal Husbandry.
- HARRY ORSON ALLISON, B. S., M. S.,
Associate Professor of Animal Husbandry.
- O. S. CRISLER, D. V. M.,
Associate Professor of Veterinary Science, Superintendent of Hog-Cholera Serum Laboratory.
- ROBERT R. HUDELSON, B. S., A. M.,
Associate Professor of Soils.
- OLIVER RAY JOHNSON, B. S. in Agr., A. M.,
Associate Professor of Farm Management.
- HERBERT MEREDITH REESE, A. B., Ph. D.,
Associate Professor of Physics.
- THOMAS J. TALBERT, B. S. in Agr., A. M.,
Extension Professor of Horticulture.
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Associate Professor of Geology and Minerology.
- WILLIAM ALBERT ALBRECHT, A. B., B. S., M. S.,
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- LEE SELDON BACKUS, D. V. M.,
Assistant Professor of Veterinary Science.
- WILLIS B. COMBS, A. M.,
Assistant Professor of Dairy Husbandry.
- FRANK LESLIE DULEY, A. M.,
Assistant Professor of Soils.
- RICHARD HUFF EMBERSON, B. S. in Ed.,
Supervisor of Boys' and Girls' Club Work.
- JAMES ANDREW GIBSON, A. B., A. M.,
Assistant Professor of Analytical Chemistry.
- ROY MONROE GREEN, B. S. in Agr.,
Assistant Professor of Farm Management.
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Assistant Professor of Economics.
- JAY COURTLAND HACKLEMAN, B. S. in Agr., A. M.,
Extension Assistant Professor of Farm Crops.
- LEONARD DIXON HAIGH, B. S., M. S., Ph. D.,
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- ELMER H. HUGHES, A. M.,
Assistant to the Dean and Superintendent of Short Courses.
- HORACE FAIRCHILD MAJOR, B. S. A.,
Assistant Professor of Landscape Gardening.
- JOHN WESLEY MARDEN, B. S., M. S., D. Sc.,
Assistant Professor of Chemistry.
- ELMER MASSEY McDONALD, B. S.,
Assistant Professor of Farm Crops.
- LEROY SHELDON PALMER, B. S. in Ch. E., A. M., Ph. D.,
*Assistant Professor of Dairy Chemistry, Assistant Chemist to the
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- EARNEST CECIL PEGG, A. B., M. F.,
Assistant Professor of Forestry.
- JAMES WALTER RANKIN, A. B., A. M., Ph. D.,
Assistant Professor of English.
- GEORGE WASHINGTON REAVIS,
Supervisor of Boys' and Girls' Clubs.
- SILAS TRUMAN SIMPSON, B. S. in Agr.,
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- K. C. SULLIVAN, A. M.,
Assistant Professor of Entomology.
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Assistant Professor of Dairy Husbandry.
- MARY V. DOVER, A. B., M. Sc., Ph. D.,
Instructor in Chemistry.
- ADRAIN JACKSON DURANT, A. M.,
Instructor in Veterinary Science.
- TURNER H. HOPPER, A. B.,
Instructor in Agricultural Chemistry.
- HAROLD GOULD NEWMAN, B. S. in Agr., A. M.,
Instructor in Veterinary Science.
- MERVIN J. PHELAN, 1st Lieutenant, Infantry.
- WALTER S. RITCHIE, A. M.,
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- ADDIE D. ROOT, A. B., B. S.,
*Extension Instructor in Home Economics, Supervisor of Girls'
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- SAMUEL BRYAN SHIRKEY, B. S. in Agr.,
Instructor in Agricultural Chemistry.
- LEWIS JOHN STADLER, A. M.,
Instructor in Farm Crops.
- H. G. SWARTWOUT, B. S. in Agr.,
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*In the service.

THE
UNIVERSITY OF MISSOURI
BULLETIN

GENERAL SERIES

EDITED BY
VAUGHN BRYANT
University Publisher

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VOLUME 21,

NUMBER 13

GENERAL SERIES

1920, No. 7

COLLEGE OF AGRICULTURE

ANNOUNCEMENT 1920-21



ISSUED THREE TIMES MONTHLY; ENTERED AS SECOND-CLASS MAT
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UNIVERSITY CALENDAR

1920-1921

1920

Fall Term

August 26, 27, 28.....	Thursday, Friday, Saturday, entrance examinations
August 30, 31.....	Monday, Tuesday, registration
September 1	Wednesday, 8 a. m., class work begins
November 1	Monday, 8 a. m., to { First term, two-year
December 22	Wednesday, 4 p. m. { winter course in Agr.
November 25	Thursday, Thanksgiving Day, holiday
December 22	Wednesday, noon, fall term ends
	Christmas Holidays

1920

Winter Term

December 31	}	.....Friday, Saturday, registration
1921		
January 1		
January 3		Monday, 8 a. m., class work begins
January 3		Monday, 8 a. m., to { Second term two-year
February 26		Saturday, noon. { winter course in Agr.
February 22		Tuesday, Washington's Birthday, holiday
April 24		Sunday, Baccalaureate Address
April 27		Wednesday, Commencement Day

1921

Spring-Summer Term

April 28	Thursday, registration
April 29	Friday, 8 a. m., class work begins
June 21	Tuesday, first half of term ends
June 22	Wednesday, second half of term begins
July 4	Monday, the Fourth of July, holiday
August 17	Wednesday, spring-summer term ends

OPPORTUNITIES IN AGRICULTURE

During the next few years (the reconstruction and adjustment period) there will be a great demand for more trained men in agriculture, such as up-to-date farmers, farm managers, managers of large estates, teachers in secondary schools of agriculture, normal schools, colleges, and universities, experiment station workers, county agents, etc. It is your privilege to help develop and maintain an adequate agricultural program. Will you not enter the ranks of trained men that you may be of greater value in this service? The College of Agriculture, University of Missouri, trains men to understand better the problems of agricultural development. Some of the many opportunities open to those who have had training in the College of Agriculture are described below.

I. Farming: The College of Agriculture of the University of Missouri believes that the man who is to have the management of a good Missouri farm should have the same opportunity for training in his profession as has the physician, the lawyer, the teacher, or the engineer. The standard of production must be raised. This is no more important, however, than the need of putting better business methods into farm practices and of completely making over the social fabric of the country so that the farm may be the best place in the world to live and enjoy life. A sensible training in agriculture makes this possible.

II. College Work: With the world-wide awakening to the need of better farm methods has come a correspondingly rapid growth and development of agricultural colleges everywhere. This has opened many teaching positions to those who know agriculture and know how to teach it to college students. One of the serious problems confronting our agricultural colleges is to find men equipped by training and natural inclination to fill the teaching positions which are always waiting. More than 4,000 teachers are employed by the agricultural colleges of the United States.

III. Vocational Agriculture: There is a rapidly increasing demand for teachers of agriculture in high schools. This demand has been greatly stimulated by the passage of the Smith-Hughes Act, giving federal aid to those schools qualifying under its provisions. There is evidence that one of the next great developments in agricultural education will be in the high schools. Agricultural college graduates will therefore be in demand at attractive salaries to fill these positions. A special course leading to the degree of Bachelor of Science in Agriculture is being offered by the College of Agricul-

ture, beginning in 1918, for the training of these teachers. (See page 26.)

IV. Agricultural Experiment Station Work: Of even greater importance than the teaching of scientific agriculture in colleges and secondary schools is the investigation of farm problems conducted by the various agricultural experiment stations. These problems are concerned with improvement of the standard farm crops and the breeding of new varieties of grains and forage plants; the control of plant and animal diseases; the chemical analysis of soils and fertilizers; the economical feeding of live stock for meat and labor; the control of injurious insect pests; the study of chemical bacterial agencies in the soil; the working out of practical methods of orchard, farm and garden management. The field for agricultural research is unlimited and the demand for such investigations increases with the years. More than 1,200 persons are now engaged in agricultural experiment station work in the United States.

V. Live Stock Farming: The most profitable farms in the Middle West are live stock farms. Live stock farms which yield the largest returns are equipped with pure bred animals. The business of breeding pure bred live stock is profitable. The demand for high class animals is increasing rapidly. The college teaches breed types, pedigrees, and expert handling of pure bred, registered live stock.

VI. Dairy Farming: There probably is no one branch of agriculture in which there has been greater growth in the last decade than that of dairy farming. Farmers with inferior cattle are demanding a better grade. The dairyman who knows how to breed and feed dairy cows and how to care for and market their products has an unlimited opportunity.

VII. Fruit Growing: There are thousands of acres of unprofitable orchards in Missouri. These orchards have not received proper care. There is a great demand for first class fruit and good opportunities in fruit growing for one who knows how. The man who is successful in fruit growing must be able to prune and spray his trees properly and know how to market his fruit. This knowledge is given to every student who completes the course in the College of Agriculture.

VIII. Creamery Operating: The rapid development of the dairy industry has caused many new creameries to be established. This, together with close competition, has resulted in an increased demand for trained creamery operators. These men must know the technical methods that are followed in the manufacture of dairy products, and understand the problems of distribution and marketing. Operators and employees of creameries who have agricultural college training

have an excellent opportunity to aid in the development of the dairy industry in their respective communities.

IX. Country Ministers' Work: It is now generally recognized that the country minister of the future will have a much closer relationship to the life of the community which he serves than he has had in the past. Ministers who live in the country and take a leading part in the agricultural life of the community are the ones who will render the most efficient service. An agricultural college training will increase the efficiency of country ministers.

X. Industrial and Commercial Work: The railroad and transportation companies employ a large and increasing number of trained agricultural men. The fertilizer companies are looking to the agricultural colleges to supply them with men who understand the whole problem of increasing and maintaining soil fertility. Packers, grain dealers, milling concerns, manufacturers of farm machinery and motors, and real estate agencies are all employing college trained men in agriculture.

XI. Agricultural Journalism: The number of agricultural college graduates who have taken editorial positions with farm papers in the last five years has probably been greater than in the twenty years preceding. It is a growing field, affording excellent opportunities.

XII. Extension Work: The big problem of the agricultural colleges and experiment stations today is the problem of how to carry the information in their possession to the farmers of the nation and apply it directly to the farm. The farmers themselves and all persons interested in the farm are demanding that the agricultural colleges increase their extension service. It will take a good sized army of men to meet the needs of the extension service during the next decade. These men must largely be college graduates. They must know the "how" and "why" of farming. Forty-six counties in Missouri have county agents at the present time (March 1, 1919). Eight other counties have completed all financial arrangements and will employ agents as soon as men can be found to fill the positions. The interest in this work seems to have increased rather than diminished since the war, and the organization of farm bureaus is going steadily forward.

XIII. Service in the United States Department of Agriculture: The United States Department of Agriculture holds to the agricultural interests of the entire nation a relation similar to that which the College of Agriculture holds to the farming interests of Missouri. Altogether there are 15,000 persons in the service of the national Department of Agriculture. Under its supervision comes the extensive

meat inspection service, food inspection, and various other forms of government inspection; the weather service with branches and substations in every state; an extensive publication service; the administration of government agricultural and forest lands; an extension service covering every phase of agricultural activity concerned with the actual processes of farming, the farm home, social conditions on the farm, or the education of the farm boy and girl thru the medium of boys' and girls' clubs. Many of these positions are open only to graduates of agricultural colleges.

XIV. Landscape Gardening: In the care of country estates, city parks, and municipal improvement projects, men are needed who understand soils, fertilizers and the general principles of plant growing and development, and who combine with this fundamental knowledge, a thoro acquaintance with trees, shrubs, and flowering plants as well as a knowledge of the principles underlying landscape gardening.

XV. Agricultural Leadership: The farmers are rapidly becoming a powerful factor in national affairs. Through such farmers' organizations as the Farm Bureau, Grange, Farmers' Union and others, the farmer is in a position to exercise great influence and to render exceptional service in directing the affairs of the nation. To serve agriculture efficiently he must be able to think clearly and to know well the farmers' problems. The College of Agriculture trains men to think and gives courses in Rural Economics, Rural Sociology and American Government. The graduates of the College of Agriculture are trained for leadership.

THE COLLEGE OF AGRICULTURE

UNIVERSITY OPEN THE ENTIRE YEAR

The work of the University of Missouri continues thruout the entire year. Formerly the University was open for two semesters, including approximately sixteen weeks of school work each, and a summer session of eight weeks. The revised plan provides for three terms of sixteen weeks each. It is not expected many students will remain in the University eight consecutive terms in order to finish the work for a degree, altho it is possible to do so. This three-term plan has particular advantages in that the winter term closes in April, thus allowing students to return to the farms to put in a crop. Those students who desire to spend the spring-summer term in the University, however, will find most of the agricultural courses offered.

COMPLETE AND MODERN EQUIPMENT BUILDINGS

Agricultural Hall: A two-story stone structure with a high basement and an auditorium seating 500 persons. More than 1,000 students may be accommodated at one time in classrooms and laboratories. The building includes offices of the dean and director, the seed testing laboratory, the agricultural library, the departments of soils, field crops, animal husbandry, rural life, and the extension service.

Horticulture Hall: A stone building, two stories and a well-lighted basement, with plant house and insectary, classrooms, laboratories, offices and preparation rooms for horticulture, landscape gardening, and entomology.

Dairy Hall: A stone building, two stories with cheese-curing room in basement, rooms for creamery manufactures, cheese-making, farm dairy work, milk-testing laboratory, dairy bacteriology, offices, and classrooms.

Physics Hall: This building on the East Campus is a modern fire-proof laboratory. Lecture rooms and laboratories are well-lighted, excellently equipped, and convenient.

Schweitzer Hall: A new two-story stone building for agricultural chemistry, 170 feet long and 65 feet wide, with well-lighted basement. Half of the first floor is occupied by the offices and general chemical laboratories of the Agricultural Experiment Station. The basement contains a thoroly equipped nutrition laboratory with demonstration room and large refrigerating rooms offering excep-

tional facilities for meat studies, including dressing and curing. The rest of the building is given over mainly to students' laboratories, lecture rooms, and class-rooms.

Biology Hall: A two-story stone building with an exceptionally well-lighted and ventilated basement. The building is 220 feet by 60 feet. It is of fire-proof construction thruout and is considered the most modern laboratory building of the University. The departments of zoology and botany, in which agricultural students receive instruction, are housed in this building. The laboratories are equipped with modern furniture and fixtures. There are two large lecture rooms in this building.

Live Stock Judging Pavilion: A new Live Stock Judging Pavilion is available for the instruction in live stock judging and animal production. This building is adjacent to barns on the University Farm. It is of steel and wood construction, the frame work being of steel. The outside dimensions are 90x160 feet. The arena is 50x120. It has a seating capacity of 1,500. The arena can be divided by dropping a large curtain, thus making it possible to hold two large classes in live stock judging at the same time. The building includes, in addition, offices, practicum rooms, locker rooms, and shower baths. During four winter months, it is also used as a gymnasium for the short course students.

Greenhouses: Six greenhouses are available for instruction and investigation. Three greenhouses, each 25x100 feet; two, each 16x50 feet, and one 25x50, embracing a total of 10,350 square feet under glass, are used by the departments of horticulture, entomology, botany, soils, and farm crops. In addition to these there are 1,000 square feet of hot bed and cold frame space under glass. This glass space affords facilities for instructional work, the maintenance of plant collections, and investigations.

Veterinary Hall: The veterinary department is housed in a new three-story building given over exclusively to investigation and instruction in veterinary science. The building contains laboratories for anatomy, physiology, investigations in contagious and infectious diseases, and operating rooms for clinics.

Poultry Hall: A two-story stone building, including general office, incubator room equipped with various types of incubators, classrooms, and laboratory.

The poultry department has one fifteen-pen laying and breeding house, a feed house with killing pen in the basement, three farm poultry houses, one experimental breeding house, and ten portable colony houses. Several hundred fowls, representing the popular varieties, are kept for instructional and experimental purposes.

Barn Equipment: Special barns for horses, sheep, dairy cows,

and hogs; and feeding sheds for beef cattle are included in the equipment of the College of Agriculture. All barns, sheds, and lots are constructed with practical usefulness in mind, and information concerning their efficiency is available.

LABORATORIES

Agricultural Engineering: The agricultural engineering laboratory contains a large assortment of modern machinery, including one or more of the principal field and power machines. A line shaft driven by an electric motor is available for demonstrating these machines.

For instruction in gas engines and tractors, the laboratory is equipped with twelve stationary and portable gasoline and oil engines, several four-cylinder motors, various types of transmissions and differentials, and samples of the latest type of tractors with suitable equipment for testing them. Lighting units are provided for work on farm lighting systems. Drafting tables are provided to accommodate the men designing farm buildings.

The equipment for concrete work includes a complete set of concreting tools, molds for building blocks, forms for fence posts, water troughs and tanks, and tile machines, with small apparatus for testing cement and aggregates. Levels and transits with a complete set of tools are provided for farm surveying and tile drainage work.

Botany: Laboratories for physiological and structural botany, and culture rooms for physiological, and bacteriological work are in the new Biology Building. They are equipped with compound and dissecting microscopes, microtomes, steam and steam pressure sterilizers, incubators, balances, precision apparatus, and glassware. The herbarium amply illustrates the local flora.

Agricultural Chemistry: Schweitzer Hall, the new agricultural chemistry building, furnishes exceptional classroom and laboratory facilities for undergraduate instruction. The new building has two large student laboratories, a nitrogen laboratory, two balance rooms and an ether extraction room exclusively for student laboratory work. The total capacity of the laboratories is 260 students each term. A number of research rooms are provided to facilitate the research work of more advanced students, giving special opportunities for investigations of problems in animal nutrition, silos, fertilizers, foods and feed stuffs, including a critical study of the provisional and official methods of the Association of Official Agricultural Chemists.

Entomology: The laboratories and insectary in Horticultural Hall are supplied with microscopes, dissecting instruments, micro-

tomes, breeding cages, aquaria, spraying machines, insecticides and reagents. The museum contains collections of several thousand species of the more injurious and beneficial insects, arranged to illustrate their habits of work and life history.

Horticulture: The horticultural laboratories occupy about 6,000 square feet of forcing-space under glass, a laboratory for the propagation of dormant plants, and storage room for cuttings, bulbs, stocks, and scions. The department also has laboratories for soil examinations and investigation of special horticultural problems regarding plant growth. The out-of-door collection on the horticultural grounds comprises about 1,000 varieties of fruit, ornamental shrubs and trees for a study of planting, pruning, cultivating, and spraying.

Field Crops: The laboratories for instructional and investigational work include a large and well-equipped laboratory for the study and exhibition of the various types and most important varieties of field crops, including material and equipment for the judging and handling of grains, a room for storing and preserving classroom material, a germinating room, a seed house, a research laboratory, and a seed testing laboratory maintained in cooperation with the United States Department of Agriculture.

The department also maintains an economic plant garden in which are grown the various types and principal varieties of all field crops, together with the most prominent wild related forms. This affords an excellent opportunity for the study of such crops in the field and material for systematic study of botanical characters and relationships in the laboratory.

Dairy Husbandry: Facilities for instruction in dairy manufactures and dairy products include a creamery room equipped with power separators, churns, pasteurizers, sterilizers, and butter printers; a cheese room provided with vats; cheese presses; a cheese curing room; cream separators, milk testing apparatus, and hand churns; refrigerating and cold storage plant; a laboratory for instruction and investigation in dairy bacteriology, and a laboratory for investigation in the composition of milk. From 500 to 800 pounds of milk are clarified, pasteurized and bottled daily for the University Commons. From 500 to 1,000 pounds of butter are manufactured each week thruout the year. The surplus skimmilk is sold. Cream cheese and ice cream are also manufactured regularly.

Soils: The facilities for instructional and investigational work in soils include a large soils laboratory for the required course of instruction, a soil bacteriological laboratory, storage rooms, and a special laboratory for advanced students. The equipment of the laboratories includes that necessary for work in soil physics, soil

fertility, and soil bacteriology. A plant house 30x65 feet is provided for special experiments by students and by those engaged in experiment station investigations. In addition, the various soil experiments in progress on the Agricultural Experiment Station field offer special opportunity for both instruction and investigation, while the results of the soil survey and of the various outlying soil experiment fields are used to good advantage in the instructional work.

Physics: The physics laboratories are in Physics Hall. Rooms are equipped with various electric circuits, compressed air, gas, and hot and cold water. The equipment is modern and adequate. The lecture rooms are especially designed for experimental demonstrations in general physics with special apparatus for this work.

Zoology: Laboratories for the study of general zoology, embryology, cytology, and other zoological subjects are in Biology Hall. They are equipped with compound and dissecting microscopes and other apparatus which is required in the different courses offered. The lecture room is equipped with a stereopticon lantern for the projection of microscopic slides, lantern slides and opaque objects.

University Serum Farm: The hog-cholera serum plant is on a 90-acre farm about three miles north of the University Farm. The plant has a capacity of 50,000,000 cubic centimeters of serum a year. When at full capacity, 1,500 hyper-immune hogs will be kept, and the College will be able to meet any emergency. With this equipment the students in the College of Agriculture are able to make a thoro study of the methods of controlling and eradicating hog cholera as well as of the manufacture of serum.

LIVE STOCK EQUIPMENT

Dairy Herd: The department of dairy husbandry at the present time has nearly 100 pure bred animals of the Jersey, Holstein, Ayrshire, and Milking Shorthorn breeds. Six of these cows have made records of more than 20,000 pounds of milk in a year. Sixteen have made records of more than 700 pounds of butter in a year while in the herd. One cow has produced 960 pounds of butter in one year. All the animals in the herd except some of the herd bulls have been bred on the University Farm. For the student who expects to follow dairy farming, this herd offers an excellent opportunity to study a successful system of herd management. In 1917 the Dairy Judging Team, the training of which was made possible by a study of this herd, won the championship at the National Dairy Show in a judging contest in which teams representing sixteen state agricultural colleges took part.

Horses: The department of animal husbandry maintains a stud of thirty horses representing Percherons, American Saddle Horses, standard-bred horses, and Morgans. Sons and daughters of some of the most famous sires of America are included. In addition there are available for instructional purposes fourteen head of high class work horses and mules—the property of other departments—besides several stables of sale, breeding, and show horses and mules in or near Columbia.

Swine: The swine herd includes breeding herds of Duroc Jerseys, Poland Chinas, and Berkshires. About twenty-five mature sows are kept. These, with their offspring, make a herd of 150 to 200 hogs, which furnish material for instructional purposes in pork production and in swine judging. From 15 to 75 head of fat barrows are exhibited at live stock shows each year. The herd has produced grand champions at the International Live Stock Show, and these, together with their sires, dams, and pigs of similar breeding, are available for instructional purposes. Information concerning the methods of feeding them is also available.

Beef Cattle: The department of animal husbandry maintains a herd of about sixty head of pure-bred beef cattle, representing the Shorthorn, Aberdeen-Angus, Hereford, and Galloway breeds. The breeding herd is maintained in a practical and productive manner which forms a basis for a study of the management of beef cattle and supplies specimens for judging work. A herd of show steers exhibited each year at some of the leading live stock shows in the United States is also available for judging practice. This herd includes champion and first prize individuals, together with some first prize groups. These cattle are available for instructional purposes, and the prizes which they have won furnish a measure of their efficiency.

Typical specimens of the various market classes and grades of cattle are obtained from a market center each winter for demonstration purposes. The Agricultural Experiment Station beef cattle, numbering from forty to eighty head, are also available for study.

Sheep: A breeding flock of about one hundred pure-bred sheep representing the Shropshire, Hampshire, Dorset Horn and South Down breeds is maintained for instructional work. A small grade flock is also kept to illustrate the market classes and grades of sheep and to emphasize the value of using pure-bred rams. The students are taught to shear the sheep, prepare them for shows, and to manage the flock from the farmer's standpoint.

LAND EQUIPMENT

Altogether, there are 700 acres in the University Farm. A large

part of this is hilly bluegrass pasture. Forty acres of the land are used for experiments in forestry. There is enough cultivated land to satisfy the requirements of instruction, and students are given an opportunity to study in the field the effects of proper and improper soil management and crop rotation as well as to observe all the facts of plant growth and plant development, which are necessary to a proper understanding of field crop rotation. The horticultural grounds are adequate to teach the principles of orchard and garden management in every detail.

University Fruit Farm: The University owns eighty acres of land near Turner Station, five miles south of Columbia. This farm lies on the fertile loess soil common along the Missouri River, said to be the best fruit soil known. More than thirty acres are now planted to the leading varieties of apples, peaches, pears, plums, cherries, and small fruits adapted to Missouri. Here students study the adaptation and characteristics of the different fruits and observe the effect of different cultural methods used.

THE TEACHING STAFF

Fifty-nine teachers give their time to the instruction of agricultural students in the strictly agricultural subjects. They also give a considerable part of their time to making experiments and a limited part to extensive work among the farmers of the state. This combination of duties places them in a position to teach most effectively because they are in close contact with the farmers, while at the same time they are helping solve the farm problems. Fifteen persons give their entire time to extension teaching and demonstration in agriculture and home economics out in the state. In addition to this corps of teachers, there are fourteen teachers who give instruction to agricultural students in the fundamental sciences, such as geology, zoology, botany, chemistry, and physics, upon which sciences technical agriculture is founded.

THE COURSE OF STUDY

The fundamental idea in planning the course of study at the College of Agriculture is to train men to be farmers, teachers, and investigators in the broadest sense of the term. The course is founded on the belief that to be a successful farmer, a successful teacher of agriculture, a successful investigator of farm problems, or a practical writer on farm subjects, a man must first of all understand farming; he must be taught to see the application of every scientific fact to the actual practice of farming; he must be taught to realize that

the whole scheme of agricultural education centers about the soil and its products. This is the idea upon which the course in agriculture at the University of Missouri is built.

Undergraduate Instruction: The undergraduate courses lead to the degree of Bachelor of Science in Agriculture. The College of Agriculture is fortunate in being organized as a division of a University comprising a College of Arts and Science, a School of Education, a School of Engineering, a School of Mines and Metallurgy, a School of Law, a School of Journalism, a School of Medicine, and a School of Business and Public Administration. Coordinating with the work of the University, altho independent from it, is also the Missouri Bible College. The student in agriculture, if he desires, may broaden his course by electing subjects from any of these other divisions of the University. His associations while at the college bring him in contact with men in other divisions whose purposes and views of life are widely divergent. Because of these associations, a graduate of the College of Agriculture leaves the University a broader man, with a better understanding of the world in which he is to live and of which he is to form an important part. Because of his breadth of view, and because of his studies outside the technical field of agriculture, he is better fitted for a higher citizenship and for a higher place in community life than is possible where opportunities are more restricted. Scholarships and prizes are available to students who meet certain requirements. For particulars in regard to these undergraduate scholarships and prizes, see the University of Missouri catalog, or address the Dean of the College of Agriculture, Columbia, Missouri.

Graduate Instruction: Graduate instruction in agriculture is offered in the Graduate School of the University of Missouri. The student cannot enter the Graduate School until he has completed the undergraduate course of study at the College of Agriculture or at an institution of equal standing. The graduate course leads to the degrees of Master of Arts and Doctor of Philosophy. The College of Agriculture believes that those who lead in the development of agricultural life and thought must have the best training available. For those who intend to teach in a university or agricultural school or who expect to take up investigational work in an experiment station, a graduate course of study is highly important. The faculty of the College of Agriculture offers in the Graduate School of the University complete and adequate facilities for graduate instruction, and a large number of students of agriculture are enrolled in the Graduate School.

To encourage graduate study the University offers scholarships paying \$300 a year and fellowships paying \$500 as described in the

University of Missouri catalog. Graduates of colleges are eligible for these agricultural scholarships and fellowships. Further information in reference to the scholarships and fellowships may be had by writing to the Dean of the Graduate School, University of Missouri, Columbia, Missouri.

STUDENT ORGANIZATIONS

The College of Agriculture recognizes the fact that a part of each student's training should be the development of his powers of administration and self-government. In pursuance of this idea, student organizations have been encouraged and every student is urged to affiliate himself with some organization or some movement in which students exercise their capacity to conduct important and complicated enterprises without the directing influence of the officers of the college. Many successful organizations are conducted by agricultural students.

The Agricultural Club: This union of all agricultural students in the University has been a power for good in promoting college spirit and loyalty to the College of Agriculture. The organization has worked unselfishly for the best good of all and is worthy of the active support of every agricultural student.

The College Farmer: The agricultural college paper is published monthly during the college year. Its excellent management deserves great credit for the uniformly high character of the publication. The purpose of the paper is to present reliable articles on agricultural subjects and to bring to the attention of the farmers and others the work of the college and station. The editors and managers are elected annually by the Agricultural Club.

The Farmers' Fair: Once a year the agricultural students give a county fair. This event calls for the display of considerable ability in organization and is useful in stimulating the ingenuity of individual students. A live stock, agricultural, and horticultural display divides attention with more recreative features provided by the students.

Barn Warming: A real old-fashioned barn warming is held by the students in the College of Agriculture each fall. This barn warming, formerly held in the loft of the horse barn but now in Rothwell Gymnasium, because of lack of space in the former place, is in the nature of an autumn festival.

Student Branch of A. S. A. E.: This is composed of students in the School of Engineering who are enrolled for an agricultural engineering degree, and regular agricultural students taking work in the Department of Agricultural Engineering. This society meets

twice a month to discuss problems of engineering as applied to agriculture.

Block and Bridle Club: An organization of students interested in animal husbandry has been formed for the discussion of animal husbandry problems. During Farmers' Week and during other live stock meetings in Columbia, club members perform valuable services showing visitors the College and explaining the work that is being done. Each year they spend much time and energy fitting live stock for the show rings.

Horticultural Club: This organization is composed of graduates and undergraduates who are specializing in horticulture. Its meetings are held twice a month and are given over to the reading of scientific papers and informal discussions dealing with horticultural problems.

Vocational Agriculture Teachers' Club: This club was organized early in 1920 and has a membership of 30 students. It was organized for the purpose of promoting the best interests of the Smith-Hughes schools. The club meets twice a month to exchange ideas of the students and of the teachers in the field, and by so doing it is hoped that interest in the work will be fostered.

University Grange No. 2094: The interest and responsibilities of the agricultural student do not end with his immediate surroundings in college. He justly feels that he owes a duty to the farming class to which he belongs. In the Grange, faculty and students meet and discuss the broader phases of agriculture which are of interest to them as farmers rather than students.

Students' Dairy Association: Graduate and undergraduate students in dairy husbandry have organized this association. It meets bi-monthly to discuss scientific and practical problems of dairying.

Forestry Club: Students and teachers in the forestry department meet twice a month for the presentation of papers and informal discussions of current events in forestry.

Honorary Societies: Students in the College of Agriculture have organized several honorary societies. The honor society of agriculture, Gamma Sigma Delta, is a graduate honorary society including in its membership faculty, alumni, graduate students, and seniors within one term of graduation. Membership in this organization is limited to men of high scholarship, capacity for original research, and leadership in modern agriculture.

Alpha Zeta is an honorary society for under-graduate students. Only upperclassmen of highest scholarship are eligible to membership.

Sigma Kappa Zeta is a student honorary horticultural society.

Only upperclassmen of high scholarship and who are specializing in horticulture are eligible to membership.

PRACTICAL EXCURSIONS

In order to bring students into closest possible touch with the field of practical agriculture, different departments annually arrange for a number of excursions, mainly to the farms to successful farmers and breeders. The practical excursion, therefore, becomes an important factor in helping the college to impress upon the student the close connection between the work of the classroom and laboratory and the practical field of agriculture.

MEDICAL ATTENTION FOR STUDENTS

Regularly enrolled students in the University who pay the full fee of \$15 a term may have free medical attention and hospital care, except those in the employ of the University who hold rank higher than that of undergraduate student assistant. In the dispensary at Parker Memorial Hospital, students may consult with and have treatment by the members of the staff of the department of clinical medicine and surgery. The attention of the same staff physicians is available to students who have to be admitted to the hospital. No charge is made for surgical operations that are considered by the staff as imperatively necessary. Hospital care is rendered without charge except for extraordinary medicines and for special nursing.

A general physical examination is required of all new students. It is carried on in the hospital at specially appointed times by the members of the department of clinical medicine and surgery. Vaccination is required of all students.

For additional information regarding the care of students' health in the University of Missouri consult the annual catalog.

MILITARY AND PHYSICAL TRAINING

All physically fit men students in the University are required to take four terms of Military Science and Tactics and Physical Training during their freshman and sophomore years.

All women students are required to take four terms of physical training two hours a week during their freshman and sophomore years.

CULTURAL ADVANTAGES

Each year the University brings to Columbia talented lectures, musicians, and artists. A series of musical concerts under the aus-

pices of Phi Mu Alpha, a musical society, has become an established part of the season's attractions. Several good plays are presented each year in the University Auditorium. The University assemblies held at frequent intervals are addressed by noted men from all parts of the United States and occasionally by men from abroad. Farmers' Week and Journalism Week draw to the University men of note in the fields of agriculture and journalism. The University art exhibits display some of the finest collection of paintings and art work that can be had outside of the principal art centers.

Students who are especially interested in a musical training will find ample facilities for such training in the University band, glee club, orchestra, or chorus. The city of Columbia, outside of the University, has some of the best teachers of vocal and instrumental music that can be found anywhere.

RELIGIOUS LIFE AT THE UNIVERSITY

On the average about 72 per cent of all the students registered in the University of Missouri are church members and about 18 per cent more have church preferences. There are more ministerial students in the University of Missouri in proportion to its enrollment than in any other state university. The Rev. Hugh Black, eminent theologian of New York, recently said, after delivering a series of religious addresses at the University, "I have found a greater appreciation of religious matters and interest in them in the University of Missouri than in the denominational institutions that I have visited." Many members of the University faculty are active in the church life of the community. The leading religious denominations in Columbia have efficiently organized the student work of their churches. Several of the churches employ assistant student pastors.

Young Men's Christian Association: The students of the University have always taken an active interest in the Young Men's Christian Association. This Association owns a \$60,000 stone building devoted to the religious and social life of the students of the University. In the building are rooms for the accommodation of eighty students. In addition there are quarters for the secretary and other officers of the association, an auditorium for meetings, and various committee rooms used by the student organizations. New students are advised to confer with the secretary of the Young Men's Christian Association in reference to finding suitable places to board and room. Students desiring employment should also consult the secretary in charge of this work in the Y. M. C. A. Building.

COLUMBIA A DESIRABLE STUDENT HOME

Columbia is near the center of Boone County, which is one of the central counties of the state. Branch lines lead to it from McBaine on the Missouri, Kansas, & Texas Railway and from Centralia on the Wabash Railway. It is an ideal college town. The residents realize that the state of Missouri has entrusted them with the responsibility of providing a clean, wholesome environment for her sons and daughters during the four or more years of their college life. The city board of health is diligent in enforcing the health ordinances. The fire department looks to the proper equipment of all rooming and boarding houses so that the danger from fire is practically eliminated. The water supply is the best that deep-well service can afford.

Columbia is a city of broad paved streets, of beautiful shade trees, and home-like dwellings.. The houses in the University section are built with an eye to beauty, comfort, and utility. In these houses, the homes of citizens, students in the College of Agriculture make their homes. There is one dormitory for men with a capacity of only twenty-three students. The Y.M.C.A. Building accommodates eighty, the Knights of Columbus Home seventy, and the Missouri Bible College building forty in addition.

AGRICULTURE AND HOME ECONOMICS FOR WOMEN

Attention is called to the special curriculum in agriculture and home economics which has been arranged for the benefit of young women in the country who desire to have a knowledge of modern methods of agriculture. This course is correlated with the work in home economics and it is possible to get a complete training in the latter subject while pursuing courses in agriculture. The agricultural subjects adapted to women are largely in the departments of soils, farm crops, horticulture, botany, poultry husbandry, dairy husbandry, and animal husbandry.

See page 27 for curriculum.

REQUIREMENTS FOR ADMISSION

Candidates for admission to the College of Agriculture should write early to the Registrar, University of Missouri, Columbia, Missouri, for the general catalog of the University, blanks for reporting high school credits, and detailed information concerning admission to the University.

High school subjects which are required for admission are designated in terms of "units," a unit being the equivalent of a subject pursued five periods a week for at least thirty-six weeks, four units constituting a year's work.

Fifteen units, the equivalent of a four years' high school course, are required for admission as a regular student to the College of Agriculture. Three units in English and one unit in mathematics are fixed requirements. These fixed requirements are waived in the case of graduates of high schools fully accredited by this University. The remaining eleven units may be selected from the list given in the University catalog. In preparation for admission to the College of Agriculture, students are strongly urged to take at least one laboratory science.

Entrance Conditions: Applicants for admission who are deficient in a small part of the requirements may be admitted conditionally at the discretion of the Committee on Entrance.

Students from accredited schools will not be admitted, subject to a condition, unless they are graduates of such schools.

Entrance conditions to the College of Agriculture must be removed within one year from the date of entrance. Students should consult with the Registrar regarding the removal of such conditions.

SUBJECTS ACCEPTED FOR ADMISSION

The subjects in which entrance units may be offered, the minimum and the maximum number of units that may be offered in each subject, and the number of units or hours required for admission to each college or school of the University, are to be found in the University catalog.

Admission by Examination: Students who have had the equivalent of a high school training either by private study or by study in an unaccredited school may gain admission to the College of Agriculture by passing entrance examinations. Permission to take the entrance examinations must be obtained in advance from the Registrar as described in the University catalog.

Special Students: Mature men and women may be admitted to

the College of Agriculture for special study in such subjects as they are prepared to pursue with profit to themselves. Such students must be at least 21 years old. Special students are not candidates for degrees and cannot become such until they have fulfilled all requirements for admission as regular students. An application for admission as a special student should be made to the Registrar as described in the University catalog.

HOW TO ENTER THE COLLEGE

First, write to the Registrar, University of Missouri, Columbia, Missouri, for a blank certificate for admission and a University of Missouri catalog.

Second, when this blank is received take it to the principal of the high school (or other school) in which your preparatory education was received, tell him that you wish to enter the College of Agriculture of the University of Missouri and ask him to fill out the blank.

Third, when the blank is properly filled out mail it to the Registrar, University of Missouri, Columbia, Missouri. You will then be notified regarding your admission.

Fourth, come to Columbia on August 30, 1920 (or December 31, 1920, if you wish to start with the opening of the second term). Plan to be in Columbia before the second registration day at the latest.

Fifth, go to Academic Hall on the West Campus, where you will receive instructions in regard to registration.

Sixth, for further information in regard to entrance write to the Registrar, University of Missouri, Columbia, Missouri.

FEES AND DEPOSITS

Tuition is free in all divisions of the University to students who are residents of the State of Missouri. Non-residents of the state are required to pay a tuition fee of \$10 a term, except in the Graduate School. A library, hospital, and incidental fee of \$15 for each registration is required of all students, except those especially exempt by law or by rules of the Curators of the University. A fee of \$5 is charged for each diploma and a fee of \$2 is charged for each certificate given.

In laboratory courses fees and deposits are required to pay for material used, depreciation of equipment, and damage to University property. In some laboratory courses only a fee is required, in some both fee and a deposit, and in others only a deposit. For full statement of laboratory fees and deposits see the University catalog.

LIVING EXPENSES

The necessary expenses of living a term of sixteen weeks at the University are estimated in the table below:

Room Rent	\$32
Board	96
Books, stationery, and supplies	16
Laundry	16
Library, hospital, and incidental fees	15
Incidentals	40
<hr/>	
Total	\$215

The estimate above does not include laboratory fees and deposits. The estimate for board is based on the average price at the Commons and at private boarding houses. The estimate of room rent is based on the average cost of a room at private residences in Columbia. The estimate of books, laundry, and incidentals is considered liberal.

WORKING ONE'S WAY

It is variously estimated that from 20 to 30 per cent of the students in the College of Agriculture are paying all or a considerable part of their expenses by working while attending the University. A limited number of students work for the various departments of the college in caring for the live stock, assisting in the dairy department, working in the various divisions of the Agricultural Experiment Station, including Field Crops, Soils, Veterinary Science, Rural Life, Agricultural Extension Service, Entomology, Agricultural Engineering, and giving assistance in pruning, spraying, and planting on the horticultural grounds.

Students also find employment in Columbia caring for furnaces, waiting on tables, clerking, and in numerous other ways. Prospective students who must earn part of their expenses should write to the Secretary, Employment Bureau, University Y. M. C. A., Columbia, Missouri, for information.

DEGREES

The degree of Bachelor of Science in Agriculture is conferred upon all students completing the four-year curriculum in agriculture for men and the four-year curriculum in agriculture and home economics for women.

The degree of Master of Arts is conferred upon students by the Graduate School for two terms, graduate study in any of the departments of agriculture. (See announcement of the Graduate School.)

The degree of Doctor of Philosophy is conferred upon students in the Graduate School who have given not less than six terms of advanced study to some special branch and have attained exceptional proficiency in original research.

CURRICULA

A. Four-year curriculum in agriculture for men, leading to the degree of Bachelor of Science in Agriculture (B. S. in Agr.).

B. Four-year curriculum for the training of teachers of vocational agriculture, leading to the degree of Bachelor of Science in Agriculture (B. S. in Agr.).

C. Four-year curriculum in agriculture and home economics for women, leading to the degree of Bachelor of Science in Agriculture (B. S. in Agr.).

D. Two-year Winter Course in Agriculture.

E. Short Course in Home Economics.

F. Course in Dairy Manufactures.

G. A Farmers' Short Course in Agriculture is offered each year in January at Columbia.

A. FOUR-YEAR CURRICULUM IN AGRICULTURE FOR MEN

Required Work: The prescribed courses are indicated in the four-year curriculum in agriculture for men, page 25. All candidates for the degree of Bachelor of Science in Agriculture must satisfactorily complete 128 hours, including the requirement in military science and physical education. All candidates for the degree must have registered in and completed the hours (87) prescribed in the curriculum, and in addition 26 hours elected from technical agri-

cultural courses and 15 hours from any subjects offered in the University of Missouri or other standard college. Technical agricultural subjects are all courses now being offered in the departments of agricultural engineering, animal husbandry, dairy husbandry, field crops, rural life, horticulture, poultry husbandry, soils, and veterinary science; all courses in entomology except 103w, 104f and 116f; agricultural chemistry 105w and 205w; plant pathology; all courses in rural sociology and rural economics; all courses for agricultural students in forestry; woodwork 1f and metalwork 2f in industrial arts.

Candidates for graduation who matriculate without having adequate farm experience are required to have one year of practical farm experience before the degree will be conferred. All students are advised to get this experience before entering the College of Agriculture. The college cannot undertake to provide the means for satisfying this requirement.

Certificates to Teach: Students by properly selecting this work may obtain the degree of B.S. in Agriculture from the College of Agriculture and the certificate to teach valid for life from the School of Education in approximately four years and one summer term in the University. To obtain this certificate the students must elect 24 hours in education which must include the following courses: Education A102, Educational Psychology; Education B120, History of Education; Education D111, Theory and Observation of Teaching; Bacteriology and Preventive Medicine 1, Preventive Medicine; Education C150, School Economy; and Education D155, 156, 157, or 158, Practice Teaching. Courses in education may be taken as free electives under the curriculum in agriculture. Those desiring both the degrees and certificate should plan their course in consultation with the Dean of the School of Education and the Dean of the College of Agriculture.

By electing courses in consultation with the Dean of the School of Education students may obtain a certificate to teach valid for two years and the degree of B.S. in Agr. in four years.

Advisers: A corps of advisers appointed from the faculty by the dean is charged with the duty of advising students regarding their university work.

Regulations, Grades, and Credits: The general regulations governing grades and credits (see annual catalog) apply to all courses in this college. Students of exceptional ability may shorten the period of residence by superior scholarship. Students who in any term fall behind in more than 40 per cent of the hours in which they are registered at the end of that term, or who fall more than nine hours behind the total number of hours for which they have registered up to that time, exclusive of the first term of the freshman year, will be

dropped from the college. The cumulative hour rule does not apply to work taken during the first term of the freshman year, but the application of the 40 per cent rule in the case of such students shall be at the discretion of the dean.

All students who have been dropped under this rule are permitted to return after one term.

Opportunity to Graduates of Standard Colleges: Graduates of standard colleges will be able to meet the requirements for the degree of B. S. in Agriculture upon completion of four semesters (64 hours) of work in the College of Agriculture, provided they have completed subjects listed below or substantially equivalent courses in Science:

Biological Science	15 hrs.
Geology	5 hrs.
Physics	5 hrs.
Chemistry	15 hrs.
Social Science	5 hrs.

Special Training: Students who desire a more specialized training in Agricultural Chemistry, Animal Nutrition, Entomology, Genetics, Landscape Gardening, Plant Pathology, Plant Physiology, or Soil and Dairy Bacteriology, will be permitted to substitute not more than 15 hours for agricultural electives. Such courses must be approved by the teachers in charge of the major subject of specialization. Substitution for the technical agriculture requirements are permitted only when the teacher in charge of the major subject of specialization has definitely approved the particular courses which are to be offered for such substitutions, and in every case the special subjects selected must be approved by the Dean.

CURRICULUM

FRESHMAN

<i>First Term</i>		<i>Second Term</i>	
Problems in Citizenship, including		Problems in Citizenship, including	
English Composition	5 hrs.	English Composition	5 hrs.
Chemistry 4f or 6f	5 "	Botany 1w	5 "
Animal Husbandry 1f	3 "	Field Crops 1w	5 "
Horticulture 1f	3 "	Military Science and Physical	
Military Science and Physical		Education	2 "
Education	2 "		

SOPHOMORE

<i>First Term</i>		<i>Second Term</i>	
Chemistry 25f	5 hrs.	Zoology 1w	5 hrs.
Physics 1w	5 "	Botany 3w	3 "
Dairying 1f	3 "	Soils 1w	5 "
Elective	3 "	Elective	3 "

JUNIOR

<i>First Term</i>		<i>Second Term</i>	
Chemistry 15f	3 hrs.	Agricultural Chemistry 1w	3 hrs.
¹ Social Science	5 "	² Animal Husbandry 101w or	
Animal Husbandry 100f	3 "	Horticulture 115w	3 "
³ Veterinary Science 1f	5 "	Geology 2w	3 "
		³ Botany 100w	5 "
		Elective	2 "

SENIOR

<i>First Term</i>	<i>Second Term</i>
Elective	Elective

¹ 5 hours of Rural Economics or Rural Sociology required.

²Field Crops 104f is a third option.

³Botany 100w or Veterinary Science 1f required.

B. FOUR-YEAR CURRICULUM FOR THE TRAINING OF TEACHERS OF VOCATIONAL AGRICULTURE

The curriculum in vocational agricultural teaching is designed to prepare teachers of agriculture for the secondary schools. The passage by Congress of the Smith-Hughes Act providing federal aid for those secondary schools giving approved courses in agriculture, home economics, or the trades is already creating a large demand for college trained teachers of agriculture. This curriculum has been arranged to meet the approval of the state and federal boards of Vocational Education charged with the administration of the Smith-Hughes Act.

CURRICULUM

FRESHMAN

<i>First Term</i>	<i>Second Term</i>
Problems in Citizenship, including	Problems in Citizenship, including
English Composition	English Composition
Chemistry 1f	Botany 1w
Animal Husbandry 1f	Field Crops 1w
Horticulture 1f	Military
Military	
18 "	17 "

SOPHOMORE

<i>First Term</i>	<i>Second Term</i>
Chemistry 25f	Zoology 1w
Physics 1f	Soils 1w
Dairy Husbandry 1f	Botany 3w
Elective	Elective
Military	Military
18 "	17 "

JUNIOR

<i>First Term</i>		<i>Second Term</i>	
Veterinary Science 1f	5 hrs.	Agricultural Chemistry 1w	3 hrs.
Animal Husbandry 100f	3 "	Animal Husbandry 101w, Horticulture 115w, or Field Crops 104f..	3 "
Methods of Teaching Plant Husbandry E105f	3 "	Methods of Teaching Animal Husbandry E107f	3 "
Educational Psychology 102f	3 "	Animal Husbandry 3w	3 "
Organization and Management of Vocational Agriculture in Secondary Schools E115f, w, sp sm	2 "	Grain Crops 101w	2 "
	—	Elective	2 "
	16 "		16 "

SENIOR

<i>First Term</i>		<i>Second Term</i>	
Farm Machinery and Farm Motors 2f	3 hrs.	Farm Shop Work 104w	3 hrs.
Supervised Teaching 155f, 156w, 157sp, or 158sm	5 "	Rural Sociology 115w	3 "
Elective		Elective	

Students will be required to elect from the following courses a sufficient number of hours for graduation:

Advanced Live Stock Judging 102f	3 hrs.	Beef Production 103w	3 "
Applied Entomology 2f	3 "	Slaughtering of Domestic Animals and Cutting and Curing of Meats 4f or 4w	2 "
Forage Crops 103f	3 "	Vocational Guidance 5w	3 "
Farm Accounts 105f	3 "	Rural Sanitation 5w	2 "
Agricultural Economics 2f	5 "	Elementary Poultry 2w	2 "
Stock Farm Sanitation and Disease Prevention 104f or 105w	3 "	Pork Production 105w	2 "
History of Agr. Education 1f	1 "	Public Speaking	2 "
Field Crops Management 2w	2 hrs.	Agr. Journalism 127w	3 "

C. FOUR-YEAR CURRICULUM IN AGRICULTURE AND HOME ECONOMICS FOR WOMEN

The curriculum in agriculture and home economics for women emphasizes those phases of instruction in agriculture and home economics of special significance to the women primarily interested in agriculture. It is arranged to train women for positions of leadership and responsibility in home life, the teaching profession, and is especially adapted to the needs of women who expect to engage in extension work in home economics. The degree of Bachelor of Science in Agriculture is conferred upon completion of the required work.

Required Work: The student must complete a total of 122 hours including the requirements in physical training. Of the total num-

ber of hours, 62 hours are fixed requirements as shown in the curriculum, 30 hours are major electives to be selected as indicated below, and 30 hours are free electives.

CURRICULUM

FRESHMAN

<i>First Term</i>		<i>Second Term.</i>	
English 1f	5 hrs.	English 2w	5 hrs.
Home Economics 1f or w	5 "	*Home Economics 52f or w	3 "
Chemistry 1f or w	5 "	Botany 1f or w	5 "
Physical Training	½ "	Chemistry 2f or w	3 "
		Physical Training	½ "

SOPHOMORE

<i>First Term</i>		<i>Second Term.</i>	
Horticulture 1f or w or 3f or w..	3 hrs.	Physiology 1w	5 hrs.
Chemistry 15f or w	3 "	Botany 3f or w	3 "
Home Economics 10f	2 "	Home Economics 11w	2 "
Preventive Medicine 1f or w....	2 "	Dairy Husbandry 1f or w	3 "
Electives	5 "	Electives	2 "
Physical Training	½ "	Physical Training	½ "

JUNIOR

<i>First Term</i>		<i>Second Term.</i>	
Rural Sociology	3 hrs.	Rural Economics	3 hrs.
Electives	12 "	Electives	12 "

SENIOR

<i>First Term</i>		<i>Second Term.</i>	
Electives	15 hrs.	Electives	15 hrs.

*Students who have had no clothing construction work in the high school should elect Home Economics 50f or w for 5 hours instead of 52 for 3 hours.

Major Electives (30 hours): Students are required to select one of the three following groups of courses as a major elective.

(1) The plant group, which includes courses in botany, field crops, horticulture, soils, and entomology not prescribed in the curriculum.

(2) The animal group, which includes courses in zoology, animal husbandry, dairy husbandry, poultry husbandry and veterinary science not prescribed in the curriculum.

(3) The home economics group, in which the 30 hours must be chosen from one of the following lines of specialization:

A. *The Farm Home.*

Home Economics other than courses prescribed	18 hrs.
Animal Husbandry 5f	1 hr.
Any home economics or technical agricultural courses not prescribed	11 hrs.

B. Vocational Home Economics Teaching.

Home Economics other than courses prescribed	19 hrs.
Theory and Practice of Art 2f, w, sp and sm	5 hrs.
Animal Husbandry 5f	1 hr.
Theory of Design, 10w and sm, or Home Economics 145 Dress Design	5 or 3 hrs.

Of the 25 hours remaining, 15 must be given to the courses in education prescribed in the curriculum for training teachers in Vocational Home Economics. (See University catalog.)

C. Home Economics Extension.

Home Economics other than courses prescribed	16 hrs.
Education, 102f (Ed. Psychology)	4 hrs.
Education, 130f (Theory of Teaching)	3 hrs.
English, 75f (Public Speaking)	2 hrs.
Home Economics, 170f (Methods of Ext. Teaching in Home Economics)	2 hrs.
Home Economics, 175f and w (Ext. Practice Teaching)	3 hrs.

It is recommended that a part of the 25 hours of free electives be chosen from technical agricultural subjects.

STATEMENT OF COURSES

AGRICULTURAL CHEMISTRY

1f, w, and sp. AGRICULTURAL ANALYSIS. (3) *Mr. Ritchie.*

2f, w, and s. FOOD ANALYSIS. (3) *Mr. Ritchie.*

101f, w, and s. ADVANCED AGRICULTURAL ANALYSIS. (3) to (5) *Mr. Moulton; Mr. Haigh; Mr. Ritchie.*

105w. DAIRY CHEMISTRY. (3) A study of the chemical composition and physical properties of milk and its constituents and of the products manufactured therefrom. *Mr. ———; Mr. Moulton.*

200f, 201w, and 202s. SEMINAR (1) *Mr. Moulton.*

204f. PHYSIOLOGICAL CHEMISTRY OF THE DOMESTIC ANIMAL. (3) *Mr. Moulton.*

205w. PLANT CHEMISTRY. (3) An introduction to the chemistry of plant products, dealing with their isolation, determination properties, and physiological significance. *Mr. Hooker.*

211f, 212w and 213s. RESEARCH. *Mr. Moulton; Mr. Haigh; Mr. Ritchie.*

AGRICULTURAL ENGINEERING

The courses offered by this department, which is administered joint-

ly by the deans of the College of Agriculture and the School of Engineering, are primarily to meet the needs of the agricultural student desiring some knowledge of mechanics as applied to farm work. The demand, however, for men thoroly trained in engineering as applied to different phases of agriculture has become so great that a special agricultural engineering curriculum has been arranged which appears in the announcement made by the School of Engineering.

This curriculum is designed to fit men for professional work in that line of engineering where an agricultural viewpoint is necessary, such as problems in drainage and irrigation, planning farm buildings, and design of farm machinery. It will fit men for government and teaching positions, to be experts and salesmen with farm machinery manufacturers and will prepare them to take charge of large farms where engineering applications in agriculture are important factors.

The following courses are arranged for regular agricultural students:

- 1w. FARM BUILDINGS. (4) *Mr. Lehmann.*
- 2f, w, and sp. FARM MACHINERY AND FARM MOTORS. (3) *Mr. Jones.*
- 4f and sp. CONSTRUCTION METHODS. (2) *Mr. Lehmann; Mr. Jones.*
- 5w and sm. RURAL SANITATION. (2) *Mr. Lehmann.*
- 6f. FARM SURVEYING AND DRAINAGE. (3) *Mr. Lehmann.*
- 100f, 101w, and 102sm. SPECIAL PROBLEMS. (2-5) *Mr. Lehmann; Mr. Jones.*
- 103f. FARM MOTORS. (2) *Mr. Jones.*
- 104w and sm. FARM SHOP WORK. (3) *Mr. Lehmann.*

ANIMAL HUSBANDRY

- 1f, w, and sm. TYPES AND MARKET CLASSES OF LIVE STOCK. (3) *Mr. Chittenden; Mr. Schenken.*
- 2f. BREEDS OF LIVE STOCK. (3) *Mr. Trowbridge.*
- 3w and sp. LIVE STOCK JUDGING. (3) *Mr. Weaver.*
- 4f and w. SLAUGHTERING OF DOMESTIC ANIMALS AND CUTTING AND CURING OF MEATS. (2) *Mr. Schenken.*
- 100f and s. ANIMAL NUTRITION. (3) *Mr. Weaver.*
- 101w. ANIMAL BREEDING. (3) *Mr. Trowbridge.*
- 102f. ADVANCED LIVE STOCK JUDGING. (3) *Mr. Weaver.*
- 103w. BEEF PRODUCTION. (3) *Mr. _____.*
- 104w. SHEEP PRODUCTION. (2) *Mr. _____.*
- 105w. PORK PRODUCTION. (2) may be extended to (3). *Mr. Weaver.*
- 106w. HORSE PRODUCTION. (2) *Mr. Chittenden*
- 107w. STOCK FARM MANAGEMENT. (2) *Mr. Trowbridge.*
- 200f and 210w. SEMINAR. *Mr. Trowbridge.*

202f, 203w, and 204s. RESEARCH IN ANIMAL HUSBANDRY. *Mr. Trowbridge; Mr. Weaver.*

205f, 206w, and 207s. ANIMAL BREEDING. *Mr. Mumford.*

208f, 209w, and 210s. ANIMAL NUTRITION. *Mr. Hogan.*

AGRICULTURAL LAW

1w. LEGAL PROBLEMS OF THE FARMER. A course designed to acquaint the student with some of the legal problems which are likely to confront the farmer. It includes such matters as contracts in buying or leasing land, contracts with laborers, deeds, abstracts of title, drainage and road laws, liabilities for trespass, duties of common carriers and insurance. Offered during the first eight weeks of the term. (2) *Mr. Curtis.*

AGRICULTURAL EDUCATION

E105f, w, sp and sm. METHODS IN VOCATIONAL AGRICULTURE (Plant Husbandry.) A course dealing with methods of presenting subject matter in field crops, soils, and horticulture, in secondary schools. (3) *Mr. Sexauer.*

E107f, w, sp, and sm. METHODS IN VOCATIONAL AGRICULTURE (Animal Husbandry). A course dealing with the methods of presenting animal husbandry, including dairy and poultry husbandry, in secondary schools. (3) *Mr. Miller.*

ORGANIZATION AND ADMINISTRATION OF VOCATIONAL EDUCATION. Described under Educational Administration in catalog as Education C155w and sm.

E109f, w, sp, and sm. METHODS IN TEACHING LABORATORY WORK IN VOCATIONAL AGRICULTURE. This course deals with methods of preparing and using materials and devices in laboratory work in field crops, animal husbandry, and farm machinery. A study is made also of the planning and conducting of field trips. (2) *Mr. Sexauer; Mr. Miller.*

E115f, w, sp, and sm. MANAGEMENT OF VOCATIONAL AGRICULTURE IN SECONDARY SCHOOLS. This course deals with the more important problems that occur from the time the teacher makes application for a position in a Smith-Hughes school until the work in Agriculture is in successful operation. (2) *Mr. Sexauer.*

PRACTICE TEACHING OF VOCATIONAL AGRICULTURE. Described under School Supervision in catalog as Education D155f, D156w, D157sp, and D158sm.

E160f, w, sp, and sm. HISTORY OF AGRICULTURAL EDUCATION. This course deals with the history of agricultural education, tracing its growth and scope and importance from its beginning to the present. (1) *Mr. Miller.*

E170f, w, sp, and sm. VOCATIONAL GUIDANCE IN AGRICULTURAL ACTIVITIES. This course aims to meet the need of vocational advice by students of agriculture in secondary schools. A careful study is made of individuals and occupations, and the adaption of one to the other. The work is based on practical data collected in rehabilitation work. (3) *Mr. Sexauer.*

E210f, w, sp, and sm. SPECIAL PROBLEMS IN VOCATIONAL AGRICULTURE. Discussion and presentation of papers on assigned topics having to do with agricultural education. Open to students specializing in Vocational Agriculture. (1) *Mr. Sexauer; Mr. Miller.*

E240f, w, sp, and sm. SEMINARY IN AGRICULTURAL EDUCATION. Thesis work for graduate degrees. (Credit to be arranged.) *Mr. Sexauer; Mr. Miller.*

INDUSTRIAL ARTS

1f and w. WOODWORK. (2)

1sp and sm. WOODWORK. (2)

2f and w. METAL WORK. (2)

5sp and sm. TOOLS AND MATERIALS. (1)

138sm. FURNITURE CONSTRUCTION. (2)

BOTANY

1f, w, sp, and sm. GENERAL BOTANY. (5)

3f, w, sp, and sm. GENERAL BACTERIOLOGY. (3)

100w. PLANT PHYSIOLOGY. (5)

102f. PLANT PATHOLOGY. (3)

103w. PLANT PATHOLOGY. (3)

CHEMISTRY

1f, w, sp, and sm. ELEMENTARY INORGANIC CHEMISTRY. (5)

2f, w, sp and sm. GENERAL INORGANIC CHEMISTRY. (3)

15f, w, sp, and sm. ORGANIC CHEMISTRY. (3)

25f, w, and sp. ANALYTICAL CHEMISTRY. (5)

DAIRY HUSBANDRY

1f, w, and sm. ELEMENTS OF DAIRYING. (3) *Mr. Swett; Mr. Turner.*

100w. MILK PRODUCTION. (4) *Mr. Ragsdale; Mr. Swett.*

101w. DAIRY FEEDING. (1) *Mr. Ragsdale.*

102f and w. DAIRY BACTERIOLOGY. (4) *Mr. Werner.*

103w. MARKET MILK. (4) *Mr. Dahlberg; Mr. Reid.*

104f and w. DAIRY PRODUCTS. (5) *Mr. Dahlberg; Mr. Reid.*

201f and 202w. SEMINAR. (1) *Mr. Ragsdale.*

209f, 210w, and 211s. INVESTIGATIONS IN DAIRY MANUFACTURES. *Mr. Dahlberg.*

ENGLISH

1f and 2w. PROBLEMS IN CITIZENSHIP, WITH ENGLISH COMPOSITION.
(5)

ENTOMOLOGY

2f, w, sp, and sm. APPLIED ENTOMOLOGY. (3) *Mr. Haseman; Mr. Sullivan; Mr. McLane.*

103w. INSECT ANATOMY. (2) *Mr. McLane.*

104f. CLASSIFICATION OF INSECTS. (2) *Mr. Sullivan.*

109f, sp, and sm. BEEKEEPING. (2) *Mr. Haseman; Mr. Sullivan.*

110w and s. INSECTS OF THE HOUSE, GARDEN, AND HOME PREMISES.

(2) Lectures and field work. *Mr. Sullivan; Mr. McLane.*

11f. INSECTS OF FIELD CROPS. (2) *Mr. McLane.*

11sw. INSECTS OF LIVE STOCK AND POULTRY. (2) *Mr. Sullivan; Mr. McLane.*

113f. INSECTS OF THE ORCHARD AND TRUCK CROPS. (2) *Mr. Sullivan.*

114f. FIELD PRACTICES IN INSECT CONTROL. (2) *Mr. Haseman; Mr. McLane.*

115w. RELATION OF INSECTS TO DISEASE. (3) *Mr. Haseman; Mr. Sullivan.*

116f. MORPHOLOGY, HISTOLOGY, AND DEVELOPMENT OF INSECTS. (3) *Mr. Haseman.*

200f, 210w, and 202s. RESEARCH. *Mr. Haseman.*

203f and 204w. SEMINAR. (1) *Mr. Haseman; Mr. Sullivan.*

FIELD CROPS

1f, w, and sm. FIELD CROPS. (5) *Mr. Etheridge; Mr. Stadler.*

2w, and sm. FIELD CROPS MANAGEMENT.. (2) *Mr. ———.*

101w. GRAIN CROPS. (2) *Mr. ———.*

102f. GRAIN GRADING AND MARKETING. (2) *Mr. ———.*

103f. FORAGE CROPS. (3) *Mr. Helm.*

104f. FIBER CROPS. (2) *Mr. Etheridge.*

105f. SEED ANALYSIS. (2) *Mr. ———.*

107w, and sm. FIELD CROPS IMPROVEMENT. (3) *Mr. Stadler.*

108w. RESEARCH METHODS. (2) *Mr. Etheridge; Mr. Stadler.*

109w, and sm. TEACHING METHODS. (1) *Mr. Stadler.*

110w. EXTENSION METHODS. (1) *Mr. Carter.*

111f, 112w, and 113s. SPECIAL PROBLEMS. Credit to be arranged. The teacher may be elected.

201f, 202w, 203s. RESEARCH. *Mr. Etheridge.*

204f and 205w. SEMINAR. (1) *Mr. Etheridge.*

RURAL LIFE

The Rural Life Department is the result of a reorganization in the College of Agriculture, combining what was formerly the Department of Farm Management with Rural Economics and Rural Sociology. The new and enlarged department covers the general field of Farm Management, Marketing of Farm Products, Rural Economics and Rural Sociology.

2f, w, and sp. PRINCIPLES OF RURAL ECONOMICS. (3 or 5) *Mr. Gromer.*

101w, and sp. MARKETING AND DISTRIBUTION. (3) *Mr. Johnson.*

105f, and sp. FARM ACCOUNTS. (3) *Mr. Green.*

107f, w, and sp. FARM FINANCE. (3) *Mr. Gromer.*

110w and sp. FARM ORGANIZATION. (3) *Mr. Johnson.*

111f and sp. FARM LABOR, WAGES AND PRICES. (2) *Mr. Green.*

112f and sp. ADVANCED FARM COST ACCOUNTING. (3) *Mr. Green.*

115f, w, and sm. RURAL SOCIOLOGY AND RURAL SOCIAL PROBLEMS. (3) *Mr. Taylor.*

116w and sp. LAND UTILIZATION. (3) *Mr. Johnson.*

117f. RURAL CIVIC AND COMMUNITY ORGANIZATION. (2) *Mr. Taylor.*

120f, w, and sp. AGRICULTURAL HISTORY AND GEOGRAPHY. (2) *Mr. Gromer.*

200f, w, and sp. SEMINARY. (Arranged) *Mr. Johnson; Mr. Green; Mr. Taylor, Mr. Gromer.*

205f, w, and sp. SPECIAL PROBLEMS. Thesis Required. *Mr. Johnson; Mr. Green; Mr. Taylor; Mr. Gromer.*

220w and sm. SOCIAL AND ECONOMIC SURVEYING AND INVESTIGATING. (2) *Mr. Taylor.*

FORESTRY

2w. GENERAL FORESTRY. (3) *Mr. Dunlap.*

7w. FARM FORESTRY. (3) *Mr. Dunlap.*

GEOLOGY

1sp. PRINCIPLES OF GEOLOGY. (5) *Mr. Branson; Mr. Mehl.*

2f and w. PHYSICAL GEOLOGY. (3) *Mr. Bratton.*

HOME ECONOMICS

1f, w, sp and sm. SELECTION AND PREPARATION OF FOOD. (5) *Miss Naylor; Miss Stone.*

- 10f. HOUSEHOLD PROBLEMS. (2) *Miss Stanley.*
 11f, w, sp and sm. FOOD PROBLEMS OF THE HOUSEHOLD. (2) *Miss Stone; Miss Steer.*
 50f and w. ELEMENTARY CLOTHING. (5) *Miss Caton.*
 52f, w, sp and sm. PRINCIPLES OF SELECTION AND CONSTRUCTION OF CLOTHING. (3) *Miss Caton.*
 55w, sp and sm. MILLINERY. (2) *Miss Caton.*
 60f, w, sp and sm. HOME NURSING. (2) *Mrs. Mann.*
 101f, w, sp and sm. HOUSE SANITATION. (3) *Miss Naylor.*
 110w and sm. HOUSE PLANNING AND FURNISHING. (3) *Miss Arnold.*
 115f, w, sp and sm. HOUSEHOLD MANAGEMENT. (3) *Miss Naylor.*
 120f and sm. FOOD AND NUTRITION. (5) *Mrs. Watkins; Miss Stone.*
 121w. DIETETICS. (3) *Miss Stone.*
 130f. METABOLISM AND DIETETICS. (5) *Miss Stanley.*
 145f, sp and sm. DRESS DESIGN. (3) *Miss Arnold.*
 150f and sp. THE CLOTHING PROBLEM. (5) *Miss Caton.*
 151w and sm. ADVANCED CLOTHING. (5) *Miss Gleason, Miss Arnold, Miss Forbush.*
 170w. METHODS OF EXTENTION TEACHING IN HOME ECONOMICS. (Credit to be arranged) *Miss Heyle.*
 175f and w. EXTENTION PRACTICE TEACHING IN HOME ECONOMICS. (Credit to be arranged) *Miss Heyle.*
 200. HOME ECONOMICS SEMINAR. (1) *Miss Stanley.*
 205f and 206w. RESEARCH IN FOOD PREPARATION. *Miss Stanley.*
 215f, w, sp and sm. SUPERVISION OF HOUSEHOLD MANAGEMENT. (Credit to be arranged) *Miss Naylor.*
 220f and 221w. PROBLEMS IN NUTRITION. *Miss Stanley.*
 250f and 251w. RESEARCH IN CLOTHING. *Miss Stanley, Miss Gleason.*

HOME ECONOMICS EDUCATION

(Listed and numbered under Education Courses)

- 172sm. TEACHING OF APPLIED ART. (2) *Miss Arnold.*
 173sm. TEACHING OF APPLIED SCIENCE. (2) *Miss ———.*
 174w, sp and sm. TEACHING OF VOCATIONAL HOME ECONOMICS. (2) *Miss Stanley.*
 275w. SPECIAL PROBLEMS IN ORGANIZATION AND ADMINISTRATION OF VOCATIONAL HOME ECONOMICS. (Credit to be arranged) *Miss Stanley.*

HORTICULTURE

- 1f, w, and sm. GENERAL HORTICULTURE. (3) *Mr. Bradford; Mr. Major; Mr. Rosa.*
 3w. VEGETABLE GARDENING. (3) *Mr. Rosa.*

- 4f and 5w. FLORICULTURE. (4) *Mr. Major.*
 100f. GENERAL POMOLOGY. (2) or (3) *Mr. Gardner.*
 101w. GENERAL POMOLOGY. (2) or (3) *Mr. Gardner.*
 102f. ELEMENTS OF LANDSCAPE GARDENING. (5) *Mr. Major.*
 105f. SYSTEMATIC POMOLOGY. (3) *Mr. Gardner.*
 106f. COMMERCIAL VEGETABLE GROWING. (3) *Mr. Rosa.*
 107f. PLANT MATERIAL. (2) *Mr. Major.*
 108w and sp. PLANT MATERIAL. (3) *Mr. Major.*
 112w. ADVANCED LANDSCAPE DESIGN. (3) *Mr. Major.*
 113w. SPRAYING. (2) *Mr. Swartwout.*
 114f and s. FRUIT HANDLING. (3) *Mr. Bradford.*
 115w. EVOLUTION OF CULTIVATED PLANTS. (3) *Mr. Gardner.*
 116f, 117w, and 118s. SPECIAL PROBLEMS. Hours by appointment, *Mr. Gardner; Mr. Bradford; Mr. Hooker; Mr. Rosa; Mr. Major.*
 119w. VEGETABLE FORCING. (3) *Mr. Rosa.*
 120s. MARKETING VEGETABLE CROPS. (3) *Mr. Rosa.*
 122f. FRUIT VARIETIES. (2) *Mr. Bradford.*
 130w. HISTORY AND LITERATURE OF HORTICULTURE. (2) *Mr. Gardner.*
 200f, 201w, and 202s. SPECIAL INVESTIGATIONS. Hours by appointment. *Mr. Gardner; Mr. Bradford; Mr. Hooker; Mr. Rosa; Mr. Major.*
 210f. METHODS OF HORTICULTURAL RESEARCH. (2) *Mr. Hooker.*
 215f and 216w. SEMINAR. (1) *Mr. Hooker; Mr. Gardner.*

JOURNALISM

- 127w. AGRICULTURAL JOURNALISM. (3)

METEOROLOGY

- 1w. METEOROLOGY. (1) *Mr. Reeder.*

PHYSICS

- 1f, w, and sm. ELEMENTARY PHYSICS. (5)

POULTRY HUSBANDRY

- 1f, sp and sm. ELEMENTARY POULTRY RAISING. (3) *Mr. Kempster; Mr. Hervey.*
 2w and sm. ELEMENTARY POULTRY RAISING. (3) *Mr. Kempster; Mr. Hervey.*
 103f. MARKETING POULTRY PRODUCTS. (3) *Mr. Kempster.*
 104f. POULTRY JUDGING AND BREEDING. (3) *Mr. Hervey.*
 105w. POULTRY FARM MANAGEMENT. (3) *Mr. Kempster.*

106sp and w. INCUBATING AND BROODING PRACTICE. (3) *Mr. Kempster; Mr. Hervey.*

200f and 201w. SEMINAR. (1) *Mr. Kempster.*

202f, 203w, and 204s. RESEARCH IN POULTRY HUSBANDRY. *Mr. Kempster.*

SOILS

1f, w, and sm. SOILS. (5) *Mr. Miller; Mr. Albrecht; Mr. Duley.*

2w and sm. SOIL MANAGEMENT. (3) *Mr. Miller.*

101f and sm. SOIL FERTILITY. (3) *Mr. Albrecht.*

102w. SOIL SURVEYING. (2) *Mr. Krusekopf.*

104f. SOILS OF THE UNITED STATES. (2) *Mr. Miller.*

105w. SOIL BACTERIOLOGY. (3) *Mr. Albrecht.*

106f, 107w, and 108sp and sm. SPECIAL PROBLEMS. (2-5) *Mr. Miller; Mr. Albrecht.*

200f and 201w. SEMINAR. (1) *Mr. Miller.*

205f, 206w, and 207sp and sm. SOIL RESEARCH. *Mr. Miller; Mr. Albrecht.*

VETERINARY SCIENCE

1f. VETERINARY ANATOMY AND PHYSIOLOGY. (5) *Mr. Connaway; Mr. Backus.*

2w. VETERINARY MEDICINE AND SURGERY. (3) *Mr. Backus.*

104f and sp. STOCK FARM SANITATION AND DISEASE PREVENTION. (3) *Mr. Connaway; Mr. Durant; Mr. Crisler.*

105w. STOCK FARM SANITATION AND DISEASE PREVENTION. (3)

106f. DISEASES OF POULTRY. (1) *Mr. Durant.*

207f, 208w, and 209s. RESEARCH. Hours by arrangement. *Mr. Connaway; Mr. Backus; Mr. Durant.*

ZOOLOGY

1f, w, sp, and sm. GENERAL ZOOLOGY. (5)

For further information regarding the Four-Year Curriculum in Agriculture for Men, the Four-Year Curriculum for the Training of Teachers of Vocational Agriculture, and the Four-Year Curriculum in Agriculture and Home Economics for Women write to

F. B. MUMFORD,
DEAN, FACULTY OF AGRICULTURE,
UNIVERSITY OF MISSOURI,
COLUMBIA, MISSOURI.

D. TWO-YEAR WINTER COURSE IN AGRICULTURE (SHORT COURSE)

GENERAL STATEMENT

The purpose of the two-year winter course in agriculture, which is more often called the Short Course, is to teach better farming methods and to develop a better knowledge of the business of farming. It is essentially a practical course for practical farmers. More than 3,300 young men and women have enrolled in this course and each of these has become a better farmer by reason of the instruction obtained. At present, 300 men and women annually enroll in this course. They come from nearly every county in Missouri and from many adjoining states.

The short winter course gives the largest possible amount of practical instruction in judging, breeding, and growing corn and other grains and forages; in soil fertility, field crops, and farm buildings; in live stock judging, stock feeding, animal breeding, and live stock farming; in growing, handling, and selling orchard products; in breeding, feeding and handling dairy cows; in making ice cream, butter and cheese, and handling milk products; in farm butchering and meat curing, in diseases of farm animals and their treatment; in injurious insects; in farm carpentry and blacksmithing, and handling farm machinery, tractors, and gas engines; in poultry raising; in farm management; in the keeping of farm accounts; and in rural problems, cooperation, etc.

ADMISSION: Any person more than 16 years old may enroll for instruction in the two-year winter course. No entrance examinations are given, but those admitted are supposed to have at least the equivalent of a common school education before entering. The work given is so flexible that many persons of mature years and much experience have found it profitable to attend this course along with young men and women not yet out of their teens. It is not uncommon to find a boy of 18 years attending classes along with a matured and successful farmer more than 40 years old. Sometimes father and son both attend the course.

TIME: The two-year winter course is arranged for the convenience of farmers. All of the work comes in November, December, January, and February. One can work on the farm eight months of the year and go to the short course the other four.

The course is divided into four terms. Two terms are offered each year. Each term is eight weeks long. The first term of the short course begins November 1, 1920, and the second term, January 3, 1921.

Each of the four terms is complete within itself. All the subjects taught in each term are finished at the end of the term, so that each term is a complete eight weeks' short course. Students can enter in November or January, whichever is most convenient.

EXPENSES: Students in the two-year winter course pay no tuition. An incidental fee of \$15 for two terms or any part thereof is required of all students, and a laboratory fee in those departments in which the students use materials. Board and room with private families will cost from \$8 to \$10 a week.

The cost for books and stationery will be small, amounting to about \$10 a term. Most of the instruction is given by lectures and demonstration. Books, however, are recommended, and it is desirable that the winter course students add to their libraries by the purchase of a few standard books on agriculture. The entire cost of an eight weeks' term need not exceed \$110, not including railroad fare.

CERTIFICATE: Students who complete the required work of the two-year winter course will be given a certificate of graduation.

THE COURSE OF STUDY

In each term the student is required to take certain subjects. In addition to those required, he is permitted to choose one or more of the optional subjects open to him during that term. The required and optional subjects for each term are listed on the following pages. In each term the required subjects cover fairly generally the branches of agriculture practiced on Missouri farms. The student may then choose from the optional subjects those relating to the phases of farming in which he is most interested. A student does not have a full course unless he takes all the required subjects and the full number of optional subjects indicated for each term.

Attention is directed to the fact that one may study along five special lines of farming by proper selection of the optional subjects during the four terms of the Two-Year Winter Course. He may train himself for the pure bred live stock business, the pure seed growing business, fruit growing, poultry raising or dairying. The teachers who assist in registration are prepared to advise students in the selection of optional courses.

If a student enters the University November 1, 1920, for the first time, he will take the courses under *First Year, First Term*. If he returns January 3, 1921, he will take the courses under *First Year, Second Term*. If a student cannot enter at the opening of the course on November 1, 1920, he can enter without much inconvenience for the first time, January 3, 1921. If he enters then he will take the courses listed under *First Year, Second Term*, arranged especially for those who enter then for the first time and outlined on page 42. This is the same course taken by those who entered for the first time at the beginning of the first term except that a course in stock judging adapted to the beginner is given, and the poultry course required of all students in the first term is included.

If he returns for the first term of 1921, he will then take the *First Year, First Term* courses. Those who have completed both terms of the first year will enter the *Second Year, First Term*.

All the work is thoroly practical. Much of the instruction is given by having students actually do the work under proper direction. The course is being definitely connected up with the Agricultural Extension Service of the University. It is planned to have the student continue his study of agricultural problems on his home farm when he leaves the short course. He will do this as a cooperator or demonstrator for the Agricultural Extension Service, working under the direction of some of the extension workers.

FIRST YEAR, FIRST TERM

November 1, 1920, to December 22, 1920.

Required	Periods a week
Cereal Crops and Grain Judging	5
* { Farm Dairying, or	5
{ Farm Horticulture	3
Judging Market Grades and Classes of Live Stock	3
Feeds and Feeding	5
Farm Poultry Management	3
Physical Training	2
Elective	
Farm Construction Methods	4
Farm Beekeeping	3
Fruit Packing	3
Woodworking	3
Forging	3

*Lecture required of all students. Laboratory recommended for students interested in Dairying.

FIRST YEAR, SECOND TERM

January 3, 1921, to February 26, 1921

Required	Periods a week
Prevention and Treatment of Animal Disease	3
* { Farm Dairying, or	5
{ Farm Horticulture	3
Judging Types and Breeds of Farm Animals	3
Soil Tillage	3
Farm Machinery and Engines	3
Forage Crops	4
Physical Training	2
Elective	
Pork Production	3
Beef Production	3

Spraying	3
Vegetable Gardening	3
Poultry Judging	3
Agricultural Law	3
Advanced Forging	3
Dairy Cattle Judging	2

*Lecture required of all students. Laboratory recommended for students interested in Dairying.

SECOND YEAR, FIRST TERM

November 1, 1920, to December 22, 1920

Required	Periods a week
Injurious and Beneficial Insects	3
Infectious Diseases and Farm Sanitation	3
Farm Accounts	5
Soil Fertility, Manures and Fertilizers	3
Rural Economics	3
Physical Training	2

Electives

Crop Rotations	3
Advanced Farm Machinery, Gas Engines and Tractors	3
Farm Construction Methods	4
Breeds of Livestock	3
Horse Production	3
Sheep Production	3
Farm Poultry Practice	3
Fruit Packing	3
Woodworking	3
Forging	3

SECOND YEAR, SECOND TERM

January 3, 1921, to February 27, 1921

Required	Periods a week
Animal Breeding	3
General Farm Management	3
Milk Production	3
Rural Sociology	2
Physical Trainnig	2

Electives

Farm Butchering, Cutting and Curing of Meats	3
Advanced Live Stock Judging	3
Advanced Grain Judging	3
Soil Management	3
Farm Sanitary Equipment	2
Cooperative Banking	3
Spraying	3
Vegetable Gardening	3
Incubation and Brooding Practice	3
Advanced Forging	3
Agricultural Law	2

FIRST YEAR, SECOND TERM

January 3, 1921, to February 26, 1921

For those who enter for the first time at the beginning of the second term.

Required	Periods a week
Prevention and Treatment of Animal Diseases	3
* { Farm Dairying, or	5
{ Farm Horticulture	3
Judging Market Grades and Classes of Live Stock	3
Soil Tillage	3
Farm Machinery and Engines	3
Forage Crops	4
Farm Poultry Management	3
Physical Training	2
Electives	
Spraying	3
Agricultural Law	2
Woodworking	3
Forging	3
Dairy Cattle Judging	2

*Lecture required of all students. Laboratory recommended for students interested in Dairying.

E. SHORT COURSE IN HOME ECONOMICS FOR WOMEN

The Short Course for Women lasts eight weeks. It begins November 1, 1920, and ends December 22, 1920. The time corresponds to the first term of the Two-Year Winter Course. Work is given in those subjects with which a woman as a practical home-maker should be familiar. Economy in the management of household affairs is the keynote of the whole course. The student learns how to save material, time, and labor. The course offers the kind of knowledge which a woman can apply in her every-day housework and relations to the farm. In addition to the courses in home economics, practically all the work offered in the Two-Year Winter Course for men is open to women who desire to elect any of these courses.

Entrance Requirements. Any woman more than 16 years old may attend. Older women who have had the care and responsibility of managing a house will find much that will interest them, and, because of their experience, they will derive even greater benefit from the course than girls who are less experienced. It is desirable that all students should have at least a common school education. There are no entrance examinations.

Fees and Expenses. There is no tuition fee, but each student pays an incidental fee of \$15. In the course in food and preparation

of meals there is a laboratory fee of \$2.50; in the canning and preserving courses, \$1; and in the sewing courses, a fee of 50 cents. Rooms may be had at from \$8 to \$14 a month. Where two persons occupy the same room, each pays about one-half the above sum. Board may be had at prices varying from \$5 to \$7 a week. The expenses while in Columbia need not exceed \$110.

STATEMENT OF STUDIES

Subject	Number of Lessons
1w. Preparation of Food	40
2w. Preparation of Food, 2	40
3w. Preparation of Meals	24
4w. Preparation of Meals, 2	24
5w. Canning and Preserving	16
6w. Sewing	24
7w. The Dress Problem	24
8w. Dressmaking	24
9w. Preventive Medicine	16
10w. Home Care of the Sick	16
11w. Art in Every Day Life	16
1aw. Farm Poultry Management	24
1aw. Farm Dairying	24
5aw. Vegetable Gardening	24
3aw. Farm Buttermaking	16

F. SPECIAL CREAMERY COURSE

This course includes a study of the fundamental principles involved and practical work in the manufacture, handling and marketing of creamery butter, ice cream, certain other products such as cottage cheese, cultured milk, etc., and the production and handling of market milk. It prepares men for the best positions in creameries, market milk and ice cream plants and for the operation of large private dairies where the production and handling of milk or the manufacture of dairy products is an important feature. Any creameryman, ice cream maker or milk plant man wishing to advance himself or others planning to get into dairy manufacturing work should take this course. The demand for capable trained men along these lines exceeds the supply. This course begins January 3 and ends February 26, 1921. The entire charges are a laboratory fee of \$10, and the usual library, hospital, and incidental fees of \$15.

OUTLINE OF THE COURSE

	Lectures Periods	Laboratory Periods
Creamery Buttermaking	14	21
Ice Cream Making	14	14
Market Milk	14	14
Milk Production	21	0
Dairy Bacteriology	14	7
Testing Dairy Products	7	14
Judging Dairy Products	0	7
Dairy Mechanics	14	7

For further information concerning the short winter courses in agriculture write to

E. H. HUGHES,
SUPERINTENDENT OF SHORT COURSES,
UNIVERSITY OF MISSOURI,
COLUMBIA, MO.

G. THE FARMERS' SHORT COURSE

In January each year the College of Agriculture offers a short course in agriculture for farmers in connection with the Farmers' Week program arranged in co-operation with the State Board of Agriculture, and the various agricultural associations of the state. In this course special lectures and demonstrations in soils, farm crops, animal husbandry, dairying, farm engineering, horticulture, farm management, entomology, rural economics, veterinary science, poultry farming and home economics are given in the classrooms, laboratories, and live stock pavilion belonging to the University.

FACULTY OF THE COLLEGE OF AGRICULTURE

- ALBERT ROSS HILL, A. B., Ph. D., LL. D.,
President of the University
- FREDERICK BLACKMAR MUMFORD, B. S., M. S.,
Professor of Animal Husbandry, Dean of the Faculty, Director of the Agricultural Experiment Station
- EDWIN BAYER BRANSON, A. B., A. M., Ph. D.,
Professor of Geology
- SIDNEY CALVERT, B. S., A. M.,
Professor of Organic Chemistry
- JOHN WALDO CONNAWAY, D. V. S., M. D.,
Professor of Veterinary and Comparative Medicine, Veterinarian to the Agricultural Experiment Station
- WINTERTON CONWAY CURTIS, A. B., A. M., Ph. D.,
Professor of Zoology
- FREDERICK DUNLAP, F. E.,
Professor of Forestry, Forester to the Agricultural Experiment Station
- WILLIAM CARLYLE ETHERIDGE, B. S. in Agr., M. S., Ph. D.,
Professor of Field Crops
- VICTOR RAY GARDNER, B. S. in Agr., M. S. A.,
Professor of Horticulture
- LEONARD HASEMAN, A. B., A. M., Ph. D.,
Professor of Entomology, Entomologist to the Agricultural Experiment Station, Chief Inspector of Nurseries.
- ALBERT G. HOGAN, B. S., A. M., Ph. D.,
Professor of Animal Nutrition.
- OLIVER RAY JOHNSON, B. S. in Agr., A. M.,
Professor of Farm Management
- HARRY LAVERNE KEMPSTER, B. S.,
Professor of Poultry Husbandry
- GEORGE LEFEVRE, A. B., Ph. D.,
Professor of Zoology
- EMIL WILHELM LEHMANN, B. S. in E. E., E. E., B. S. in A. E., A. E.,
Professor of Agricultural Engineering
- WALTER ERNEST MEANWELL, M. D., Dr. P. H.,
Professor of Physical Education
- ARTHUR JOHN MEYER, B. S. in Agr.,
Director of Agricultural Extension Service
- MERRITT FINLEY MILLER, B. S. in Agr., M. S. A.,
Professor of Soils
- CHARLES ROBERT MOULTON, B. S., M. S. in Agr., Ph. D.,
Professor of Agricultural Chemistry

- ARTHUR CHESTER RAGSDALE, B. S. in Agr.,
Professor of Dairy Husbandry
- PONTUS HENRY ROSS, B. S. in Agr.,
State Leader of County Agents
- HERMANN SCHLUNDT, B. S., M. S., Ph. D.,
Professor of Physical Chemistry
- ROBERT WASHINGTON SELVIDGE, B. S., M. A.,
Professor of Industrial Education
- LOUISE STANLEY, B. S., B. Ed., A. M., Ph. D.,
Professor of Home Economics
- OSCAR MILTON STEWART, Ph. B., Ph. D.,
Professor of Physics
- WILLIAM ARTHUR TARR, B. S., B. S. in M. E., Ph. D.,
Professor of Geology
- EDWIN A. TROWBRIDGE, B. S. in Agr.,
Professor of Animal Husbandry
- LUTHER ABRAHAM WEAVER, B. S. in Agr.,
Professor of Animal Husbandry
- WILLIAM ALBERT ALBRECHT, A. B., B. S., M. S., Ph. D.,
Associate Professor of Soils
- OTTO SMITH CRISLER, D. V. M.,
Associate Professor of Veterinary Science, Superintendent of Hog-Cholera Serum Laboratory
- FRANK LESLIE DULEY, B. S. in Agr., A. M.,
Associate Professor of Soils
- ROY MONROE GREEN, B. S. in Agr.,
Associate Professor of Farm Management
- CHARLES ALTON HELM, B. S. in Agr., A. M.,
Associate Professor of Field Crops
- ELMER HOWARD HUGHES, B. S. in Agr., A. M.,
Assistant to Dean and Director, and Superintendent of Short Courses
- HENRY HERMAN KRUSEKOPF, B. S. in Agr., A. M.,
Associate Professor of Soils.
- HERBERT MEREDITH REESE, A. B., Ph. D.,
Associate Professor of Physics
- WALTER WHITTIER SWETT, B. S., A. M.,
Associate Professor of Dairy Husbandry
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Associate Professor of Sociology
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Associate Professor of Chemistry
- LEE SELDON BACKUS, D. V. M.,
Assistant Professor of Veterinary Science

- FREDERICK C. BRADFORD, B. S. in Agr., M. S.,
Assistant Professor of Horticulture
- DONALD WALTER CHITTENDEN, B. S. in Agr.,
Assistant Professor of Animal Husbandry
- RICHARD HUFF EMBERSON, B. S. in Ed.,
Supervisor of Boys' and Girls' Club Work
- SAMUEL DAVID GROMER, S. B., A. M., LL. D.,
Assistant Professor of Rural Economics
- LEONARD DIXON HAIGH, B. S., M. S., Ph. D.,
Assistant Professor of Agricultural Chemistry, Assistant Chemist to the Agricultural Experiment Station.
- HENRY D. HOOKER, JR., B. A., M. A., Ph. D.,
Assistant Professor of Horticulture
- EDWIN FRASER HOPKINS, B. S., P. D.,
Assistant Professor of Botany, Plant Pathologist to the Experiment Station
- HORACE FAIRCHILD MAJOR, B. S. A.,
Assistant Professor of Landscape Gardening
- WILLIS EDGAR MANEVAL, Ph. B., M. S., Ph. D.,
Assistant Professor of Botany
- LORENZO BECKLEY MANN, B. S. in Agr., M. S.,
Assistant Professor of Animal Husbandry
- JAMES WALTER RANKIN, A. B., A. M., Ph. D.,
Assistant Professor of English
- JOSEPH TOOKER ROSA, JR., B. S., M. S.,
Assistant Professor of Horticulture
- LEWIS JOHN STADLER, B. S. in Agr., A. M.,
Assistant Professor of Field Crops
- KNOWLES CLARK SULLIVAN, B. S. in Agr.,
Assistant Professor of Entomology, Deputy Inspector of Nurseries.
- MARY VIOLET DOVER, A. B., M. Sc., Ph. D.,
Instructor in Chemistry
- ADRIAN JACKSON DURANT, B., S. in Agr., A. M.,
Instructor in Veterinary Science
- GEORGE WASHINGTON HERVEY, B. S. in Agr., A. M.,
Instructor in Poultry Husbandry
- RAY E. MILLER, B. S. in Agr.,
Instructor in Agricultural Education
- HAROLD GOULD NEWMAN, B. S. in Agr., A. M.,
Instructor in Veterinary Science
- ADDIE DORRITT ROOT, A. B., B. S.,
Extension Instructor in Home Economics, Supervisor of Girls' Club Work

- WALTER S. RITCHIE, B. S. in Agr., M. S.,
Instructor in Agricultural Chemistry
- HAROLD GORDON SWARTWOUT, B. S. in Agr.,
Instructor in Horticulture
- GEORGE WASHINGTON TANNREUTHER, A. B., A. M., Ph. D.,
Instructor in Zoology
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Instructor in Dairy Husbandry
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Assistant Chemist to the Agricultural Experiment Station.
- WILLIAM DEYOUNG, B. S. in Agr.,
Assistant in Soil Survey
- JOHN HARWOOD LONGWELL, B. S. in Agr.,
Research Assistant in Animal Husbandry
- STANLEY REX MCLANE, B. S. in Agr.,
Assistant in Entomology
- ORVILLE BRYAN PRICE, B. S. in Agr.,
Assistant in Soils
- WILLIAM HERBERT EDDY REID, B. S. in Agr.,
Assistant in Dairy Husbandry
- JOHN EMORY MARQUIS ROLLER,
Assistant in Agricultural Chemistry
- CHARLES WESLEY TURNER, B. S. in Agr.,
Assistant in Dairy Husbandry

THE
UNIVERSITY OF MISSOURI
BULLETIN

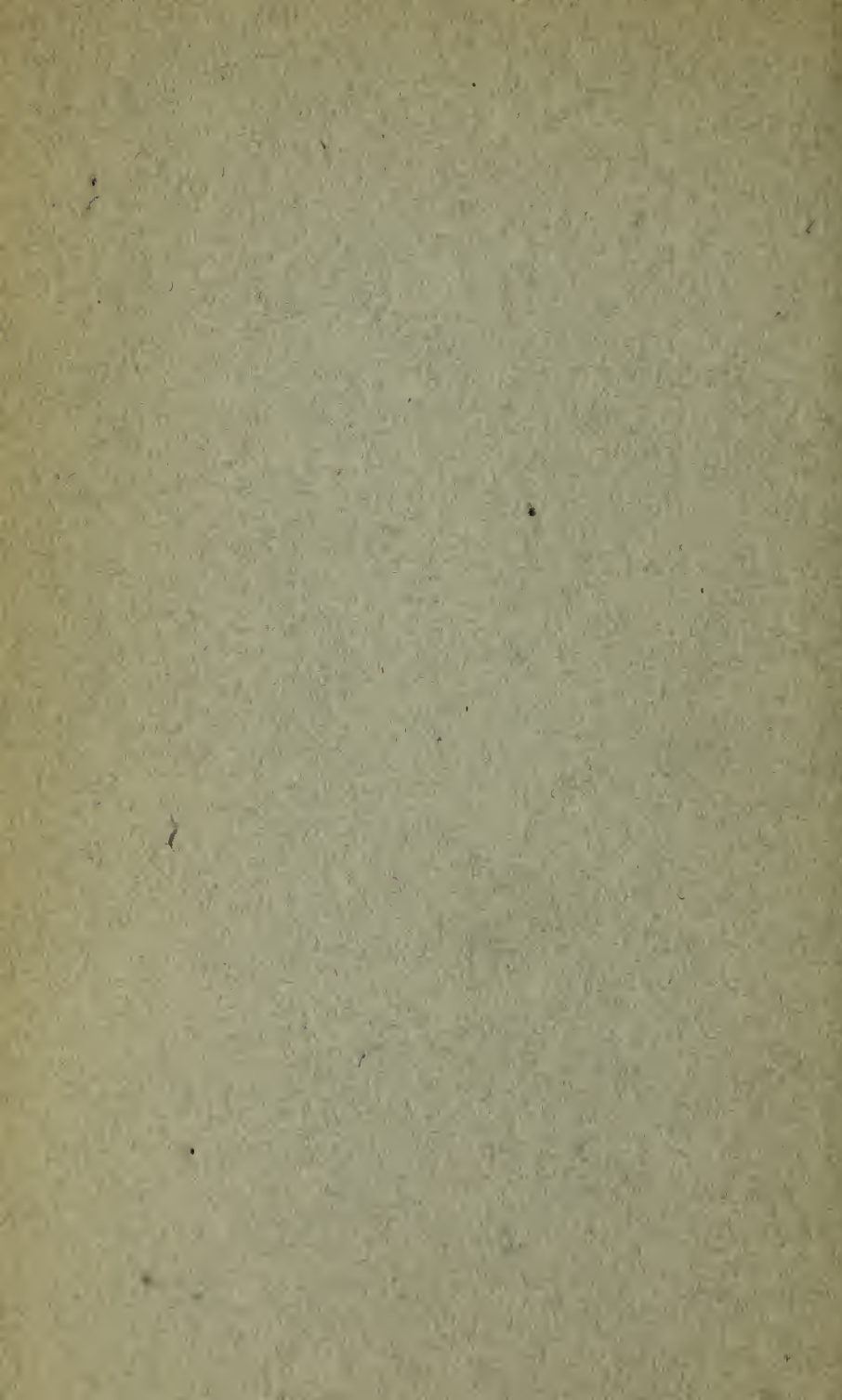
GENERAL SERIES

EDITED BY
CHARLES E. KANE
University Publisher

The General Series of the University of Missouri Bulletin consists of the University Catalog and the announcements of the various colleges and schools which make up the University. These announcements will be sent free upon request to the Registrar, University of Missouri, Columbia, Missouri.

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THE UNIVERSITY OF MISSOURI BULLETIN

VOLUME 22, NUMBER 14

GENERAL SERIES

1920, No. 11

COLLEGE OF AGRICULTURE

ANNOUNCEMENT 1921-22

UNIVERSITY OF ILLINOIS LIBRARY



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MAY, 1921

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CALENDAR FOR 1921-22

1921

Fall Term

August 29-----Monday, entrance examinations
 August 30, 31----Tuesday, Wednesday, registration
 September 1-----Thursday, 8 a. m., class work begins
 October 31-----Monday, 8 a. m. to { First term Two Year Winter
 December 21 ----Wednesday, 4 p. m. { Course in Agriculture.
 November 24-----Thursday, Thanksgiving Day, holiday
 December 21-----Wednesday, 4 p. m., fall term closes

Winter Term

December 30, 31--Friday, Saturday, registration

1922

January 2-----Monday, 8 a. m., class work begins
 January 2-----Monday 8 a. m. to { Second term Two Year Winter
 February 24-----Friday noon { Course in Agriculture
 February 22-----Wednesday, Washington's Birthday, holiday
 April 23-----Sunday, Baccalaureate Address
 April 26-----Wednesday, Commencement Day

Spring-Summer Term

April 27-----Thursday, term opens
 June 17-----Saturday noon, first half of term ends
 June 19-----Monday, 8 a. m., second half of term begins
 July 4-----Tuesday, Independence Day, holiday
 August 12-----Saturday noon, spring-summer term ends

OPPORTUNITIES IN AGRICULTURE

At the present time there is, a greater demand than ever before for trained men in agriculture in such fields as farming, college and normal school teaching, the teaching of vocational agriculture, investigational work, extension work, agricultural journalism, etc. It is your privilege to help develop and maintain an adequate agricultural program. Will you not enter the ranks of trained men that you may be of greater value in this service? The College of Agriculture, University of Missouri, trains men to understand better the problems of agricultural development. Some of the many opportunities open to those who have had training in the College of Agriculture are described below.

I. FARMING

The College of Agriculture of the University of Missouri believes that the man who is to have the management of a good Missouri farm should have the same opportunity for training in his profession as has the physician, the lawyer, the teacher, or the engineer. The standard of production must be raised. There is nothing more important, however than the need of putting better business methods into farm practices and of completely making over the social fabric of the country so that the farm may be the best place in the world to live and enjoy life. The College of Agriculture offers training in each of the following branches of farming:

a. **General Farming.** The average farmer is interested in a diversified system including many enterprises. A well-rounded course is offered in which opportunity is given for specialization along lines in which the student is particularly interested.

b. **Live Stock Farming.** The most profitable farms in the Middle West are live stock farms. Live stock farms which yield the largest returns are equipped with pure bred animals. The business of breeding pure bred live stock is profitable. The demand for high class animals is increasing rapidly. The college teaches breed types, pedigrees, and expert handling of pure bred, registered live stock.

c. **Grain Farming.** A large number of farms in the corn and wheat belts are operated as primarily grain farms. In order to make these farms yield the highest possible returns, the owners or managers must have special training in the planting, cultivation and harvesting of crops, the care and handling of the soil, the use of rotations and fertilizers, and a practical knowledge of farm management. The College of Agriculture offers this training.

d. **Dairy Farming.** There probably is no one branch of agriculture in which there has been greater growth in the last decade than that of dairy farming. Farmers with inferior cattle are demanding a better grade. The dairyman who knows how to breed and feed dairy cows and how to care for and market their products has an unlimited opportunity. Probably no branch of agriculture is so dependent for success upon training.

e. **Fruit Growing.** There are thousands of acres of unprofitable orchards in Missouri. These orchards have not received proper care. There is a great demand for first class fruit and good opportunities in fruit growing for one who knows how. The man who is successful in fruit growing must be able to prune and spray his trees properly and know how to market his fruit. This knowledge is given to every student who completes the course in the College of Agriculture.

f. **Poultry Farming.** Few people realize that poultry raising is one of the largest businesses in the United States. However, more and more farmers are making poultry raising one of their chief enterprises and are finding it very profitable. The College of Agriculture has a well equipped poultry plant and teachers of national reputation.

II. COLLEGE WORK

With the world-wide awakening to the need of better farm methods has come a correspondingly rapid growth and development of agricultural colleges everywhere. This has opened many teaching positions to those who know agriculture and know how to teach it to college students. One of the serious problems confronting our agricultural colleges is to find men equipped by training and natural inclination to fill the teaching positions which are always waiting. More than 4,000 teachers are employed by the agricultural colleges of the United States.

III. TEACHING VOCATIONAL AGRICULTURE

No field of agriculture offers more attractive initial salaries to college graduates than does the teaching of agriculture in the high schools of this state. Under the provisions of the Smith-Hughes Act recently enacted, which provides federal and state funds for the support of high school agricultural courses, this branch of education has undergone a great period of growth within recent years and promises an even greater development. There is an excellent demand at salaries ranging from \$1,800 to \$2,200 a year for well-trained graduates of the College of Agriculture who have taken sufficient work in edu-

cation to qualify as teachers of vocational agriculture. This demand is a constant one because of the increasing number of high schools which are adding agriculture to their curricula and because of the number of vocational teachers who from time to time leave the teaching profession to enter other fields for which the teaching of vocational agriculture has been admirable training. A course adapted especially for the training of vocational teachers of Vocational Agriculture and leading to the degree of Bachelor of Science in Agriculture is being offered. It is designed to give them a broad, comprehensive training which should fit them as well for any of the other fields open to graduates of this college. See the curriculum on page 29.

IV. INVESTIGATIONAL WORK

Men with sufficient training to do research work are in constant demand by experiment stations, the United States Department of Agriculture, and by commercial and industrial firms.

a. **Agricultural Experiment Station Work.** Of even greater importance than the teaching of scientific agriculture in colleges and secondary schools is the investigation of farm problems conducted by the various agricultural experiment stations. These problems are concerned with improvement of the standard farm crops and the breeding of new varieties of grains and forage plants; the control of plant and animal diseases; the chemical analysis of soils and fertilizers; the economical feeding of live stock for meat and labor; the control of injurious insect pests; the study of chemical bacterial agencies in the soil; the working out of practical methods of orchard, farm and garden management. The field for agricultural research is unlimited and the demand for such investigations increases with the years. More than 1,800 persons are now engaged in agricultural experiment station work in the United States.

b. The United States Department of Agriculture and the various bureaus of the Department of Agriculture are continually offering, through the Civil Service Commission, many excellent positions in their research laboratories. Most of these positions require that the applicant be a graduate of an agricultural college.

c. Commercial and industrial firms have long realized that they must maintain their own laboratories for experimental work. The opportunities in this line are unlimited, since practically every manufacturing concern, packing house, fertilizer company, agricultural lime company—in fact, every large concern—maintains a research staff. The College of Agriculture offers the best training possible for this work.

V. AGRICULTURAL JOURNALISM

The number of agricultural college graduates who have taken editorial positions with farm papers in the last five years has probably been greater than in the twenty years preceding. It is a growing field, affording excellent opportunities.

VI. EXTENSION WORK

The big problem of the agricultural colleges and experiment stations today is the problem of how to carry the information in their possession to the farmers of the nation and apply it directly to the farm. The farmers themselves and all persons interested in the farm are demanding that the agricultural college expand its extension service. It will take a good sized army of men to meet the needs of the extension service during the next decade. These men must be college graduates. They must know the "how" and "why" of farming. Sixty-three counties in Missouri have county agents at the present time (March 1, 1921). The interest in this work seems to have increased rather than diminished since the war, and the organization of farm bureaus is going steadily forward.

VII. COMMERCIAL AND INDUSTRIAL WORK

Salesman, field men, chemists, foremen and managers are always in demand by firms dealing in agricultural products, such as packing houses, fertilizer works, feed companies, creamery companies, poultry plants, grain dealers and milling companies. Also industrial departments of railroads, farm machinery supply houses, elevators, farmers' exchanges, cooperative societies, and real estate companies demand men trained in agriculture.

VIII. SERVICE IN THE UNITED STATES DEPARTMENT OF AGRICULTURE

The United States Department of Agriculture holds to the agricultural interests of the entire nation a relation similar to that which the College of Agriculture holds to the farming interests of Missouri. Altogether there are 15,000 persons in the service of the national Department of Agriculture. Under its supervision comes the extensive meat inspection service, food inspection, and various other forms of government inspection; the weather service with branches and substations in every state; an extensive publication service; the administration of government agricultural and forest lands; an extension

service covering every phase of agricultural activity concerned with the actual processes of farming, the farm home, social conditions on the farm, or the education of the farm boy and girl thru the medium of boys' and girls' clubs. Many of these positions are open only to graduates of agricultural colleges.

IX. LANDSCAPE GARDENING

In the care of country estates, city parks, and municipal improvement projects, men are needed who understand soils, fertilizers and the general principles of plant growing and development, and who combine with this fundamental knowledge a thoro acquaintance with trees, shrubs, and flowering plants as well as a knowledge of the principles underlying landscape gardening.

X. AGRICULTURAL LEADERSHIP

The farmers are rapidly becoming a powerful factor in national affairs. Through such farmers' organizations as the Farm Bureau, Grange, Farmers' Union, Farm Clubs, and others, the farmer is in a position to exercise great influence and to render exceptional service in directing the affairs of the nation. To serve agriculture efficiently he must be able to think clearly and to know well the farmers' problems. The College of Agriculture trains men to think and gives courses in Rural Economics, Rural Sociology and American Government. The graduates of the College of Agriculture are trained for leadership.

XI. MISCELLANEOUS

Soil survey workers are in demand in the various states. Several firms have established an agricultural consulting service similar to that engaged in by consulting engineers. They demand trained men to help carry on their work. Land appraisers are wanted in the farm loan business. Trained men are necessary in the carrying on of the feed and fertilizer control work in the various states. In addition, opportunities are open in the following lines of work: floriculture and market gardening, sugar chemists, country ministers, Y. M. C. A. and Y. W. C. A. country secretaries. Foreign service offers advantages in such work as: agricultural missionaries, agricultural specialists for foreign governments, salesmen of farm implements, and foreign trade specialists.

THE VALUE OF A COLLEGE EDUCATION TO THE FARMER

An investigation of the incomes of 554 farmers in one county of Missouri, made by the Missouri College of Agriculture, showed that the educated farmer's income was 71.4 per cent larger than that of the untrained farmer.

The Kansas State Agricultural College has made a survey of the incomes of 635 farmers in seven counties and found that the trained farmer has a greater income by nearly \$1,000 a year than those farmers with a common school education.

The United States Department of Agriculture reports a survey of three representative areas in Indiana, Illinois and Iowa. It is shown that tenant farmers with a college education received an average labor income of \$453 more a year than the man with a high school education and \$979 more a year than the man with only a common school education.

Cornell University reports that men having more than a high school education received \$225 more a year than farmers with a high school education and \$529 a year more than farmers with a common school education. They also report that 5 per cent of the farmers with a district school education had labor incomes of more than \$1,000, that 20 per cent of the farmers with a high school education had labor incomes of more than \$1,000, that 30 per cent of the farmers with more than high school education had labor incomes of more than \$1,000. A high school education is worth as much to a farmer as \$6,000 worth of 5 per cent bonds. A college education is worth nearly twice as much.

The Agricultural Experiment Station of Nebraska reports on a survey of 409 farmers in Nebraska in 1914. Those farmers who attended high school increased their labor incomes 32.1 per cent over the farmer with a common school education, and those farmers who attended college increased their labor income 51.8 per cent over the farmer with a common school education.

There is no question but that the money invested in a college education is the best investment a young man can make.

Only 1 per cent of the total population of the United States are college men, yet from this 1 per cent come 73 per cent of the leaders in our national life. Ninety-nine per cent of our population, or the group having no college education, furnish only 27 per cent of the leaders.

THE COLLEGE OF AGRICULTURE

UNIVERSITY OPEN THE ENTIRE YEAR

The work at the University of Missouri continues thruout the entire year. Three terms of sixteen weeks each are offered. A student may enter at the beginning of any term. Not many students remain in school for eight consecutive terms in order to finish the work for a degree, altho it is possible to do so. The three-term plan has special advantages for the student in agriculture in that the winter term closes in April and allows the student to be on the farm during practically all of the busy season. However, those students who desire to spend the spring-summer term in the University may continue their work.

COMPLETE AND MODERN EQUIPMENT

BUILDINGS

Agricultural Hall. A two-story stone structure with a high basement and an auditorium seating 500 persons. More than 1,000 students may be accommodated at one time in classrooms and laboratories. The building includes offices of the dean and director, the seed testing laboratory, the agricultural library, the departments of soils, field crops, animal husbandry, rural life, agricultural education, and the extension service.

Horticultural Hall. A stone building, two stories high and a well-lighted basement, with plant house and insectary, classrooms, laboratories, offices and preparation rooms for horticulture, landscape gardening, and entomology.

Dairy Hall. A stone building, two stories high with cheese curing room in basement, rooms for creamery manufacturers, cheese-making farm dairy work, milk-testing laboratory, dairy bacteriology, offices, and classrooms.

Physics Hall. This building on the East Campus is a modern fire-proof laboratory. Lecture rooms and laboratories are well-lighted, excellently equipped, and convenient.

Schweitzer Hall. A new two-story stone building for agricultural chemistry, 170 feet long and 65 feet wide, with well-lighted basement. Half of the first floor is occupied by the offices and general chemical laboratories of the Agricultural Experiment Station. The basement contains a thoroly equipped nutrition laboratory with demonstration room and large refrigerating rooms offering exceptional

facilities for meat studies, including dressing and curing. The rest of the building is given over mainly to students' laboratories, lecture rooms, and class-rooms.

Biology Hall. A two-story stone building with an exceptionally well-lighted and ventilated basement. The building is 220 feet by 60 feet. It is of fire-proof construction thruout and is considered the most modern laboratory building of the University. The departments of zoology and botany, in which agricultural students receive instruction, are housed in this building. The laboratories are equipped with modern furniture and fixtures. There are two large lecture rooms in this building.

Home Economics Hall. A two-story, fire-proof, stone building containing class rooms and laboratories for students in home economics. This is the newest building on the campus.

Veterinary Hall. The veterinary department is housed in a new three-story building given over exclusively to investigation and instruction in veterinary science. The building contains laboratories for anatomy, physiology, investigations in contagious and infectious diseases, and operating rooms for clinics.

Poultry Hall. A two-story stone building, including general office, incubator room equipped with various types of incubators, class-rooms, and laboratory.

The poultry department has one fifteen-pen laying and breeding house, a feed house with killing pen in the basement, three farm poultry houses, one experimental breeding house, and ten portable colony houses. Several hundred fowls, representing the popular varieties, are kept for instructional and experimental purposes.

Live Stock Judging Pavilion. A new Live Stock Judging Pavilion is available for the instruction in live stock judging and animal production. This building is adjacent to barns on the University Farm. It is of steel and wood construction, the frame work being of steel. The outside dimensions are 90x160 feet. The arena is 50x120. It has a seating capacity of 1,500. The arena can be divided by dropping a large curtain, thus making it possible to hold two large classes in live stock judging at the same time. The building includes, in addition, offices, practicum rooms, locker rooms, and shower baths. During four winter months, it is also used as a gymnasium for the short-course students.

Greenhouses. Six greenhouses are available for instruction and investigation. Three greenhouses, each 25x100 feet; two, each 16x50 feet, and one 25x50, embracing a total of 10,350 square feet under glass, are used by the departments of horticulture, entomology, botany, soils, and farm crops. In addition to these there are 1,000 square

feet of hot bed and cold frame space under glass. This glass space affords facilities for instructional work, the maintenance of plant collections, and investigations.

Barn Equipment. Special barns for horses, sheep, dairy cows, and hogs, and feeding sheds for beef cattle are included in the equipment of the College of Agriculture. All barns, sheds, and lots are constructed with practical usefulness in mind, and information concerning their efficiency is available.

LABORATORIES

Agricultural Engineering. The agricultural engineering laboratory contains a large assortment of modern machinery, including one or more of the principal field and power machines. A line shaft driven by an electric motor is available for demonstrating these machines.

For instruction in gas engines and tractors, the laboratory is equipped with twelve stationary and portable gasoline and oil engines, several four-cylinder motors, various types of transmissions and differentials, and samples of the latest type of tractors with suitable equipment for testing them. Lighting units are provided for work on farm lighting systems. Drafting tables are provided to accommodate the men designing farm buildings.

The equipment for concrete work includes a complete set of concreting tools, molds for building blocks, forms for fence posts, water troughs and tanks, and tile machines, with small apparatus for testing cement and aggregates. Levels and transits with a complete set of tools are provided for farm surveying and tile drainage work.

Botany. Laboratories for physiological and structural botany, and culture rooms for physiological, and bacteriological work are in the new Biology Building. They are equipped with compound and dissecting microscopes, microtomes, steam and steam pressure sterilizers, incubators, balances, precision apparatus, and glass ware. The herbarium amply illustrates the local flora.

Agricultural Chemistry. Schweitzer Hall, the new agricultural chemistry building, furnishes exceptional classroom and laboratory facilities for undergraduate instruction. The new building has two large student laboratories, a nitrogen laboratory, two balance rooms and an ether extraction room exclusively for student laboratory work. The total capacity of the laboratories is 260 students each term. A number of research rooms are provided to facilitate the research work of more advanced students, giving special opportuni-

ties for investigations of problems in animal nutrition, silos, fertilizers, foods and feed stuffs, including a critical study of the provisional and official methods of the Association of Official Agricultural Chemists.

Entomology. The laboratories and insectary in Horticultural Hall are supplied with microscopes, dissecting instruments, microtomes, breeding cages, aquaria, spraying machines, insecticides and reagents. The museum contains collections of several thousand species of the more injurious and beneficial insects, arranged to illustrate their habits of work and life history.

Horticulture. The horticultural laboratories occupy about 6,000 square feet of forcing-space under glass, a laboratory for the propagation of dormant plants, and storage room for cuttings, bulbs, stocks, and scions. The department also has laboratories for soil examinations and investigation of special horticultural problems regarding plant growth. The out-of-door collection on the horticultural grounds comprises about 1,000 varieties of fruit, ornamental shrubs and trees for a study of planting, pruning, cultivating, and spraying.

Field Crops. The laboratories for instructional and investigational work include a large and well-equipped laboratory for the study and exhibition of the various types and most important varieties of field crops, including material and equipment for the judging and handling of grains, a room for storing and preserving classroom material, a germinating room, a seed house, a research laboratory, and a seed testing laboratory maintained in cooperation with the United States Department of Agriculture.

The department also maintains an economic plant garden in which are grown the various types and principal varieties of all field crops, together with the most prominent wild related forms. This affords an excellent opportunity for the study of such crops in the field and material for systematic study of botanical characters and relationships in the laboratory.

Dairy Husbandry. Facilities for instruction in dairy manufactures and dairy products include a creamery room equipped with power separators, churns, pasteurizers, sterilizers, and butter printers; a cheese room provided with vats; cheese presses; a cheese curing room; cream separators, milk testing apparatus, and hand churns; refrigerating and cold storage plant; laboratories for instruction and investigation in dairy bacteriology, and for investigation in the composition of milk. From 500 to 800 pounds of milk are clarified, pasteurized and bottled daily for the University Commons. From 500 to 1,000 pounds of butter are manufactured each week thruout the year. The surplus skim milk is sold. Cream cheese and ice cream are also manufactured regularly.

Soils. The facilities for instructional and investigational work in soils include a large soils laboratory for the required course of instruction, a soil bacteriological laboratory, storage rooms, and a special laboratory for advanced students. The equipment of the laboratories includes that necessary for work in soil physics, soil fertility, and soil bacteriology. A plant house 30x65 feet is provided for special experiments by students and by those engaged in experiment station investigations. In addition, the various soil experiments in progress on the Agricultural Experiment Station field offer special opportunity for both instruction and investigation, while the results of the soil survey and of the various outlying soil experiment fields are used to good advantage in the instructional work.

Physics. The physics laboratories are in Physics Hall. Rooms are equipped with various electric circuits, compressed air, gas, and hot and cold water. The equipment is modern and adequate. The lecture rooms are especially designed for experimental demonstrations in general physics with special apparatus for this work.

Zoology. Laboratories for the study of general zoology, embryology, cytology, and other zoological subjects are in Biology Hall. They are equipped with compound and dissecting microscopes and other apparatus which is required in the different courses offered. The lecture room is equipped with a stereopticon lantern for the projection of microscopic slides, lantern slides and opaque objects.

University Serum Farm. The hog-cholera serum plant is on a 90-acre farm about three miles north of the University Farm. The plant has a capacity of 50,000,000 cubic centimeters of serum a year. When at full capacity, 1,500 hyper-immune hogs will be kept, and the College will be able to meet any emergency. With this equipment the students in the College of Agriculture are able to make a thoro study of the methods of controlling and eradicating hog cholera as well as of the manufacture of serum.

LAND EQUIPMENT

Altogether there are 700 acres in the University Farm. A large part of this is hilly bluegrass pasture. There is cultivated land for the requirements of instruction, and students are given an opportunity to study in the field the effects of proper and improper soil management and crop rotation as well as to observe all the facts of plant growth and plant development, which are necessary to a proper understanding of field crop rotation. The horticultural grounds are adequate to teach the principles of orchard and garden management in every detail.

In addition to this land a farm of 330 acres is rented by the animal husbandry department.

The University owns eighty acres of land near Turner Station, five miles south of Columbia. This farm lies on the fertile loess soil common along the Missouri River, said to be the best fruit soil known. More than thirty acres are now planted to the leading varieties of apples, peaches, pears, plums, cherries, and small fruits adapted to Missouri. Here students study the adaptation and characteristics of the different fruits and observe the effect of different cultural methods used.

LIVE STOCK EQUIPMENT

Dairy Herd. The department of dairy husbandry has nearly one hundred head of pure bred animals of the Jersey, Holstein, and Ayrshire breeds. Twenty cows in the herd have produced more than 700 pounds of butter in a year. Five of these are above 800 pounds, and two above 900 pounds. Practically the entire Jersey herd are daughters of one bull, Sultana's Virginia Lad. His entire list of daughters in this herd have official records averaging 523 pounds of butter as 2-year olds which is an increase of 45 per cent in milk production and 60 per cent in fat production over their dams at the same age. Others give promise of great records as they develop, and three have already come back with records above 700 pounds.

In the Holstein herd, six cows have produced more than 20,000 pounds of milk in one year, their average records being 22,806 pounds. One has three yearly records averaging 21,661 pounds and a life record of 157,896 pounds of milk containing 4,929 pounds of fat, equivalent to 6,121 pounds of butter.

The herd as now constituted represents a combination of the blood of Sir Pieterje Ormsby Mercedes, believed by many to be the world's greatest sire of yearly high producing cows, and Sir Korn-dyke Hengerveld DeKol, and the blood that produced Missouri Chief Josephine, a cow which produced 26,000 pounds of milk. The entire Holstein herd, excepting two herd bulls, has been bred and developed on the college farm.

A large number of Missouri graduates who worked with this herd during their college course are today playing a leading part in college and experiment station work, with the United States Department of Agriculture, in public and private enterprises and as breeders of dairy cattle. For the student who is interested in dairy husbandry, this herd offers an excellent opportunity to study a successful system of herd management. Missouri dairy cattle judging teams who received their instruction with this herd have won six \$400 schol-

arships, ten silver cups, four gold medals and sweepstakes on two occasions in nation-wide dairy cattle judging contests for university students.

Horses. The department of animal husbandry maintains a stud of thirty horses representing Percherons, American Saddle Horses, standard-bred horses, and Morgans. Sons and daughters of some of the most famous sires of America are included. In addition there are available for instructional purposes ten head of high class work horses and mules—the property of other departments—besides several stables of sale, breeding, and show horses and mules in or near Columbia.

Swine. The swine herd includes breeding herds of Duroc Jerseys and Poland Chinas. About twenty-five mature sows are kept. These, with their offspring, make a herd of 150 to 200 hogs, which furnish material for instructional purposes in pork production and in swine judging. From 15 to 75 head of fat barrows are exhibited at live stock shows each year. The herd has produced grand champions at the International Live Stock Show, and these together with their sires, dams, and pigs of similar breeding, are available for instructional purposes. Information concerning the methods of feeding them is also available.

Beef Cattle. The department of animal husbandry maintains a herd of about sixty-five head of pure-bred beef cattle, representing the Shorthorn, Aberdeen-Angus, Hereford, and Galloway breeds. The breeding herd is maintained in a practical and productive manner which forms a basis for a study of the management of beef cattle and supplies specimens for judging work. A herd of show steers exhibited each year at some of the leading live stock shows in the United States is also available for judging practice. This herd includes champion and first prize individuals, together with some first prize groups. These cattle are available for instructional purposes, and the prizes which they have won furnish a measure of their efficiency.

Typical specimens of the various market classes and grades of cattle are obtained from a market center each winter for demonstration purposes. The Agricultural Experiment Station beef cattle, numbering from forty to eighty head, are also available for study.

Sheep. A breeding flock of about one hundred pure-bred sheep representing the Shropshire, Hampshire, Dorset Horn and South Down breeds is maintained for instructional work. A small grade flock is also kept to illustrate the market classes and grades of sheep and to emphasize the value of using pure-bred rams. The students

are taught to shear the sheep, prepare them for shows, and to manage the flock from the farmer's standpoint.

THE TEACHING STAFF

Fifty-seven teachers give their time to the instruction of agricultural students in the strictly agricultural subjects. They also give a considerable part of their time to making experiments and a limited part to extension work among the farmers of the state. This combination of duties places them in a position to teach most effectively because they are in close contact with the farmers, while at the same time they are helping solve the farm problems. Twenty-four persons give their entire time to extension teaching and demonstration in agriculture and home economics out in the state. In addition to this corps of teachers, there are twenty teachers who give instruction to agricultural students in the fundamental sciences, such as geology, zoology, botany, chemistry, and physics, upon which sciences technical agriculture is founded.

THE COURSE OF STUDY

The fundamental idea in planning the course of study at the College of Agriculture is to train men to be farmers, teachers, and investigators in the broadest sense of the term. The course is founded on the belief that to be a successful farmer, a successful teacher of agriculture, a successful investigator of farm problems, or a practical writer on farm subjects, a man must first of all understand farming; he must be taught to see the application of every scientific fact to the actual practice of farming; he must be taught to realize that the whole scheme of agricultural education centers about the soil and its products. This is the idea upon which the course in agriculture at the University of Missouri is built.

Undergraduate Instruction. The undergraduate courses lead to the degree of Bachelor of Science in Agriculture. The College of Agriculture is fortunate in being organized as a division of a University comprising a College of Arts and Science, a School of Education, a School of Engineering, a School of Mines and Metallurgy, a School of Law, a School of Journalism, a School of Medicine, and a School of Business and Public Administration. Coordinating with the work of the University, altho independent from it, is also the Missouri Bible College. The student in agriculture, if he desires, may broaden his course by electing subjects from any of the other divisions of the University. His associations while at the college

bring him in contact with men in other divisions whose purposes and views of life are widely divergent. Because of these associations, a graduate of the College of Agriculture leaves the University a broader man, with a better understanding of the world in which he is to live and of which he is to form an important part. Because of his breadth of view, and because of his studies outside the technical field of agriculture, he is better fitted for a higher citizenship and for a higher place in community life than is possible where opportunities are more restricted. Scholarships and prizes are available to students who meet certain requirements. For particulars in regard to these undergraduate scholarships and prizes, see the University of Missouri catalog, or address the Dean of the College of Agriculture, Columbia, Missouri.

Graduate Instruction. Graduate instruction in agriculture is offered in the Graduate School of the University of Missouri. The student cannot enter the Graduate School until he has completed the undergraduate course of study at the College of Agriculture or at an institution of equal standing. The graduate course leads to the degrees of Master of Arts and Doctor of Philosophy. The College of Agriculture believes that those who lead in the development of agricultural life and thought must have the best training available. For those who intend to teach in a university or agricultural school or who expect to take up investigational work in an experiment station, a graduate course of study is highly important. The faculty of the College of Agriculture offers in the Graduate School of the University complete and adequate facilities for graduate instruction, and a large number of students of agriculture are enrolled in the Graduate School.

To encourage graduate study the University offers scholarships paying \$300 a year and fellowships paying \$600 as described in the University of Missouri catalog. Graduates of colleges are eligible for these agricultural scholarships and fellowships. Further information in reference to the scholarships and fellowships may be had by writing to the Dean of the Graduate School, University of Missouri, Columbia, Missouri.

STUDENT ORGANIZATIONS

The College of Agriculture recognizes the fact that a part of each student's training should be the development of his powers of administration and self-government. In pursuance of this idea, student organizations have been encouraged and every student is urged to affiliate himself with some organization or some movement in

which students exercise their capacity to conduct important and complicated enterprises without the directing influence of the officers of the college. Many successful organizations are conducted by agricultural students.

The Agricultural Club. This union of all agricultural students in the University has been a power for good in promoting college spirit and loyalty to the College of Agriculture. The organization has worked unselfishly for the best good of all and is worthy of the active support of every agricultural student.

The College Farmer. The agricultural college paper is published monthly during the college year. Its excellent management deserves great credit for the uniformly high character of the publication. The purpose of the paper is to present reliable articles on agricultural subjects and to bring to the attention of the farmers and others the work of the college and station. The editors and managers are elected annually by the Agricultural Club.

The Farmers' Fair. Once a year the agricultural students give a county fair. This event calls for the display of considerable ability in organization and is useful in stimulating the ingenuity of individual students. A live stock, agricultural, and horticultural display divides attention with more recreative features provided by the students.

Barn Warming. A real old-fashioned barn warming is held by the students in the College of Agriculture each fall. This barn warming, formerly held in the loft of the horse barn but now in Rothwell Gymnasium, because of lack of space in the former place, is in the nature of an autumn festival.

Student Branch of A. S. A. E. This is composed of students in the School of Engineering who are enrolled for an agricultural engineering degree, and regular agricultural students taking work in the Department of Agricultural Engineering. This society meets twice a month to discuss problems of engineering as applied to agriculture.

Block and Bridle Club. An organization of students interested in animal husbandry has been formed for the discussion of animal husbandry problems. During Farmers' Week and during other live stock meetings in Columbia, club members perform valuable services showing visitors the College and explaining the work that is being done. Each year they spend much time and energy fitting live stock for the show rings.

Horticultural Club. This organization is composed of graduates and undergraduates who are specializing in horticulture. Its meetings are held twice a month and are given over to the reading of scientific papers and informal discussions dealing with horticultural problems.

Vocational Agricultural Teachers' Club. This club was organized early in 1920 and has a membership of 30 students. It was organized for the purpose of promoting the best interests of the Smith-Hughes schools. The club meets twice a month to exchange ideas of the students and of the teachers in the field, and by so doing, it is hoped that interest in the work will be fostered.

University Grange No. 2094. The interest and responsibilities of the agricultural student do not end with his immediate surroundings in college. He justly feels that he owes a duty to the farming class to which he belongs. In the Grange, faculty and students meet and discuss the broader phases of agriculture which are of interest to them as farmers rather than students.

Students' Dairy Association. Graduate and undergraduate students in dairy husbandry have organized this association. It meets bi-monthly to discuss scientific and practical problems of dairying.

Honorary Societies. Students in the College of Agriculture have organized several honorary societies. Alpha Zeta is an honorary society for under-graduate students. Only upperclassmen of highest scholarship are eligible to membership.

The honor society of agriculture, Gamma Sigma Delta, is a graduate honorary society including in its membership faculty, alumni, graduate students, and seniors within one term of graduation. Membership in this organization is limited to men of high scholarship, capacity for original research, and leadership in modern agriculture.

Sigma Kappa Zeta is a student honorary horticultural society. Only upperclassmen of high scholarship and who are specializing in horticulture are eligible to membership.

Professional Fraternities. There are two professional agricultural fraternities, the Farm House and Alpha Gamma Rho. The membership of these two fraternities is limited to students in the College of Agriculture. Both maintain chapter houses.

PRACTICAL EXCURSIONS

In order to bring students into closest possible touch with the field of practical agriculture, different departments annually arrange for a number of excursions, mainly to the farms of successful farmers and breeders. The practical excursions, therefore, become an important factor in helping the college to impress upon the student the close connection between the work of the classroom and laboratory and the practical field of agriculture.

MEDICAL ATTENTION FOR STUDENTS

Regularly enrolled students in the University who pay the full fee of \$25 a term may have free medical attention and hospital care, except those in the employ of the University who hold rank higher than that of undergraduate student assistant. In the dispensary at Parker Memorial Hospital, students may consult with and have treatment by the members of the staff of the department of clinical medicine and surgery. The attention of the same staff physicians is available to students who have to be admitted to the hospital. No charge is made for surgical operations that are considered by the staff as imperatively necessary. Hospital care is rendered without charge except for extraordinary medicines and for special nursing.

A general physical examination is required of all new students. It is carried on in the hospital at specially appointed times by the members of the department of clinical medicine and surgery. Vaccination for small-pox is required of all students.

For additional information regarding the care of students' health in the University of Missouri consult the annual catalog.

MILITARY AND PHYSICAL TRAINING

All physically fit men students in the University are required to take four terms of Military Science and Tactics and Physical Training during their freshman and sophomore years.

All women students are required to take four terms of physical training two hours a week during their freshman and sophomore years.

CULTURAL ADVANTAGES

Each year the University brings to Columbia talented lecturers, musicians, and artists. A series of musical concerts under the auspices of Phi Mu Alpha, a musical society, has become an established part of the season's attractions. Several good plays are presented each year in the University Auditorium. The University assemblies held at frequent intervals are addressed by noted men from all parts of the United States and occasionally by men from abroad. Farmers' Week and Journalism Week draw to the University men of note in the fields of agriculture and journalism. The University art exhibits display some of the finest collection of paintings and art work that can be had outside of the principal art centers.

Students who are especially interested in a musical training will find ample facilities for such training in the University band, glee

club, orchestra, or chorus. The city of Columbia, outside of the University, has some of the best teachers of vocal and instrumental music that can be found anywhere.

RELIGIOUS LIFE AT THE UNIVERSITY

On the average about 72 per cent of all the students registered in the University of Missouri are church members and about 18 per cent more have church preferences. There are more ministerial students in the University of Missouri in proportion to its enrollment than in any other state university. The Rev. Hugh Black, eminent theologian of New York, recently said, after delivering a series of religious addresses at the University, "I have found a greater appreciation of religious matters and interest in them in the University of Missouri than in the denominational institutions that I have visited." Many members of the University faculty are active in the church life of the community. The leading religious denominations in Columbia have efficiently organized the student work of their churches. Several of the churches employ assistant student pastors.

Young Men's Christian Association. The students of the University have always taken an active interest in the Young Men's Christian Association. This Association owns a \$60,000 stone building devoted to the religious and social life of the students of the University. In the building are rooms for the accommodation of eighty students. In addition there are quarters for the secretary and other officers of the association, an auditorium for meetings, and various committee rooms used by the student organizations. New students are advised to confer with the secretary of the Young Men's Christian Association in reference to finding suitable places to board and room. Students desiring employment should also consult the secretary in charge of this work in the Y. M. C. A. Building.

Knights of Columbus Student Home. Recently the Knights of Columbus of Missouri have opened up a new student home a few blocks from the University Campus. This home has rooms for seventy-two men students, meals are served, and a parlor, a billiard room and an auditorium are provided for rest and recreation. The facilities of the home are open to students of all denominations, the auditorium, in particular, being obtainable for student gatherings.

COLUMBIA A DESIRABLE STUDENT HOME

Columbia is near the center of Boone County, which is one of the central counties of the state. Branch lines lead to it from McBaine on the Missouri, Kansas & Texas Railway and from Cen-

tralia on the Wabash Railway. It is an ideal college town. The residents realize that the state of Missouri has entrusted them with the responsibility of providing a clean, wholesome environment for her sons and daughters during the four or more years of their college life. The city board of health is diligent in enforcing the health ordinances. The fire department looks to the proper equipment of all rooming and boarding houses so that the danger from fire is practically eliminated. The water supply is the best that deep-well service can afford.

Columbia is a city of broad paved streets, of beautiful shade trees, and home-like dwellings. The houses in the University section are built with an eye to beauty, comfort, and utility. In these houses, the homes of citizens, students in the College of Agriculture make their homes. There is one dormitory for men with a capacity of only twenty-three students. The Y. M. C. A. Building accommodates eighty, the Knights of Columbus Home seventy, and the Missouri Bible College building forty in addition.

AGRICULTURE AND HOME ECONOMICS FOR WOMEN

Attention is called to the special curriculum in agriculture and home economics which has been arranged for the benefit of young women in the country who desire to have a knowledge of modern methods of agriculture. This course is correlated with the work in home economics and it is possible to get a complete training in the latter subject while pursuing courses in agriculture. The agricultural subjects adapted to women are largely in the departments of soils, farm crops, horticulture, botany, poultry husbandry, dairy husbandry, and animal husbandry.

See page 30 for curriculum.

REQUIREMENTS FOR ADMISSION

Candidates for admission to the College of Agriculture should write early to the Registrar, University of Missouri, Columbia, Missouri, for the general catalog of the University, blanks for reporting high school credits, and detailed information concerning admission to the University.

High school subjects which are required for admission are designated in terms of "units," a unit being the equivalent of a subject pursued five periods a week for at least thirty-six weeks, four units constituting a year's work.

Fifteen units, the equivalent of a four years' high school course, are required for admission as a regular student to the College of Agriculture. Three units in English and one unit in mathematics are fixed requirements. These fixed requirements are waived in the case of graduates of high schools fully accredited by this University. The remaining eleven units may be selected from the list given in the University catalog. In preparation for admission to the College of Agriculture, students are strongly urged to take at least one laboratory science.

Entrance Conditions. Applicants for admission who are deficient in a small part of the requirements may be admitted conditionally at the discretion of the Committee on Entrance.

Students from accredited schools will not be admitted, subject to a condition, unless they are graduates of such schools.

Entrance conditions to the College of Agriculture must be removed within one year from the date of entrance. Students should consult with the Registrar regarding the removal of such conditions.

SUBJECTS ACCEPTED FOR ADMISSION

The subjects in which entrance units may be offered, the minimum and the maximum number of units that may be offered in each subject, and the number of units or hours required for admission to each college or school of the University, are to be found in the University catalog, which will be sent on request.

Admission by Examination. Students who have had the equivalent of a high school training either by private study or by study in an unaccredited school may gain admission to the College of Agriculture by passing entrance examinations. Permission to take the entrance examinations must be obtained in advance from the Registrar as described in the University catalog.

Special Students. Mature men and women may be admitted to the College of Agriculture for special study in such subjects as they

are prepared to pursue with profit to themselves. Such students must be at least 21 years old. Special students are not candidates for degrees and cannot become such until they have fulfilled all requirements for admission as regular students. An application for admission as a special student should be made to the Registrar as described in the University catalog.

HOW TO ENTER THE COLLEGE

First, write to the Registrar, University of Missouri, Columbia, Missouri, for a blank certificate for admission and a University of Missouri catalog.

Second, when this blank is received take it to the principal of the high school (or other school) in which your preparatory education was received, tell him that you wish to enter the College of Agriculture of the University of Missouri and ask him to fill out the blank.

Third, when the blank is properly filled out mail it to the Registrar, University of Missouri, Columbia, Missouri. You will then be notified regarding your admission.

Fourth, come to Columbia on August 29, 1921, (or December 30, 1921, or April 27, 1922.) Plan to be in Columbia before the second registration day at the latest.

Fifth, go to Academic Hall on the West Campus, where you will receive instructions in regard to registration.

Sixth, for further information in regard to entrance write to the Registrar, University of Missouri, Columbia, Missouri.

FEES AND DEPOSITS

Tuition is free in all divisions of the University to students who are residents of the State of Missouri. Non-residents of the state are required to pay a tuition fee of \$10 a term, except in the Graduate School. A library, hospital, and incidental fee of \$25 for each registration is required of all students, except those especially exempt by law or by rules of the Curators of the University. A fee of \$5 is charged for each diploma and a fee of \$2 is charged for each certificate given.

A late registration fee of \$5 is also charged against those students who do not register at the proper time.

In laboratory courses fees and deposits are required to pay for material used, depreciation of equipment, and damage to University property. In some laboratory courses only a fee is required, in some both fee and a deposit, and in others only a deposit. For full statement of laboratory fees and deposits see the University catalog.

LIVING EXPENSES

The necessary expenses of living a term of sixteen weeks at the University are estimated in the table below:

Fees	\$25
Room Rent	25
Board	95
Books, stationery, and supplies	15
Laundry	15
Incidentals	50
<hr/>	
Total	\$225

The estimate for board is based on the average price at the Commons and at private boarding houses. The estimate of room rent is based on the average cost of a room at private residences in Columbia. The estimate of books, laundry, and incidentals is considered liberal.

WORKING ONE'S WAY

It is variously estimated that from 20 to 30 per cent of the students in the College of Agriculture are paying all or a considerable part of their expenses by working while attending the University. A limited number of students work for the various departments of the college in caring for the live stock, assisting in the dairy department, working in the various divisions of the Agricultural Experiment Station, including Field Crops, Soils, Veterinary Science, Rural Life, Agricultural Extension Service, Entomology, Agricultural Engineering, and giving assistance in pruning, spraying, and planting on the horticultural grounds.

Students also find employment in Columbia caring for furnaces, waiting on tables, clerking, and in numerous other ways. Prospective students who must earn part of their expenses should write to the Secretary, Employment Bureau, University Y. M. C. A., Columbia, Missouri, for information.

DEGREES

The degree of Bachelor of Science in Agriculture is conferred upon all students completing the four-year curriculum in agriculture for men and the four-year curriculum in agriculture and home economics for women.

The degree of Master of Arts is conferred upon students by the Graduate School for two terms, graduate study in any of the departments of agriculture. (See announcement of the Graduate School.)

The degree of Doctor of Philosophy is conferred upon students in the Graduate School who have given not less than six terms of advanced study to some special branch and have attained exceptional proficiency in original research.

CURRICULA

In the description of these curricula, a year is understood to mean two terms of sixteen weeks each.

A. Four-year curriculum in agriculture for men, leading to the degree of Bachelor of Science in Agriculture (B. S. in Agr.).

B. Four-year curriculum for the training of teachers of vocational agriculture, leading to the degree of Bachelor of Science in Agriculture (B. S. in Agr.).

C. Four-year curriculum in agriculture and home economics for women, leading to the degree of Bachelor of Science in Agriculture (B. S. in Agr.).

D. Two-year Winter Course in Agriculture.

E. Short Course in Home Economics.

F. Short Course in Dairy Manufactures.

G. A Farmers' Week Short Course in Agriculture is offered each year in January at Columbia.

A. FOUR-YEAR CURRICULUM IN AGRICULTURE FOR MEN

Required Work. The prescribed courses are indicated in the four-year curriculum in agriculture for men, page 28. All candidates for the degree of Bachelor of Science in Agriculture must satisfactorily complete 128 hours, including the requirement in military science and physical education. All candidates for the degree must have registered in and completed the hours (90) prescribed in the curriculum, and in addition 26 hours elected from technical agricultural courses and twelve hours from any subjects offered in the

University of Missouri or other standard college. Technical agricultural subjects are all courses now being offered in the departments of agricultural engineering, animal husbandry, dairy husbandry, field crops, rural life, horticulture, poultry husbandry, soils, and veterinary science; all courses in entomology except 103w, 104f and 116f; agricultural chemistry 204f, 115w, and 205w; plant pathology; all courses in rural sociology and rural economics; woodwork 1f and metalwork 2f in industrial arts.

Candidates for graduation who matriculate without having adequate farm experience are required to have one year of practical farm experience before the degree will be conferred. All students are advised to get this experience before entering the College of Agriculture. The college cannot undertake to provide the means for satisfying this requirement.

Certificates to Teach. Students by properly selecting this work may obtain the degree of B. S. in Agriculture from the College of Agriculture and the certificate to teach valid for life from the School of Education in approximately four years and one summer term in the University. To obtain this certificate the students must elect 24 hours in education which must include the following courses: Education A102, Educational Psychology; Education B120, History of Education; Education D111, Theory and Observation of Teaching; Bacteriology and Preventive Medicine 1, Preventive Medicine; Education C150, School Economy; and Education D155, 156, 157, or 158, Practice Teaching. Courses in education may be taken as free electives under the curriculum in agriculture. Those desiring both the degrees and certificate should plan their course in consultation with the Dean of the School of Education and the Dean of the College of Agriculture.

By electing courses in consultation with the Dean of the School of Education students may obtain a certificate to teach valid for two years and the degree of B. S. in Agr. in four years.

Advisers. A corps of advisers appointed from the faculty by the dean is charged with the duty of advising students regarding their university work.

Regulations, Grades, and Credits. The general regulations governing grades and credits (see annual catalog) apply to all courses in this college. Students of exceptional ability may shorten the period of residence by superior scholarship. Students who in any term fall behind in more than 40 per cent of the hours in which they are registered at the end of that term, or who fall more than nine hours behind the total number of hours for which they have registered up to that time, exclusive of the first term of the freshman year, will

be dropped from the college. The cumulative hour rule does not apply to work taken during the first term of the freshman year, but the application of the 40 per cent rule in the case of such students shall be at the discretion of the dean.

All students who have been dropped under this rule are permitted to return after one term.

Opportunity to Graduates of Standard Colleges. Graduates of standard colleges will be able to meet the requirements for the degree of B. S. in Agriculture upon completion of four semesters (64 hours) of work in the College of Agriculture, provided they have completed subjects listed below or substantially equivalent courses in Science:

Biological Science	15 hrs.
Geology	5 hrs.
Physics	5 hrs.
Chemistry	15 hrs.
Social Science	5 hrs.

Special Training. Students who desire a more specialized training in Agricultural Chemistry, Animal Nutrition, Entomology, Genetics, Landscape Gardening, Plant Pathology, Plant Physiology, or Soil and Dairy Bacteriology, will be permitted to substitute not more than 15 hours for agricultural electives. Such courses must be approved by the teachers in charge of the major subject of specialization. Substitution for the technical agriculture requirements are permitted only when the teacher in charge of the major subject of specialization has definitely approved the particular courses which are to be offered for such substitutions, and in every case the special subjects selected must be approved by the Dean.

CURRICULUM

FRESHMAN

<i>First Term</i>		<i>Second Term</i>	
Problems in Citizenship, including		Problems in Citizenship, including	
English Composition	5 hrs.	English Composition	5 hrs.
Chemistry 1f	5 "	Botany 1w	5 "
Animal Husbandry 1f	3 "	Field Crops 1w	5 "
Horticulture 1f	3 "	Military and Physical Education 2 "	
Military and Physical Education 2 "			

SOPHOMORE

<i>First Term</i>		<i>Second Term</i>	
Chemistry 25f	5 hrs.	Zoology 1w	5 hrs.
Physics 1f	5 "	Botany 3w	3 "
Dairying 1f	3 "	Soils 1w	5 "
Elective	3 "	Elective	3 "
Military and Physical Education 2 "		Military and Physical Education 2 "	

JUNIOR

<i>First Term</i>		<i>Second Term</i>	
Chemistry 15f	3 hrs.	Agricultural Chemistry 101w ..	3 hrs.
¹ Social Science	5 "	Animal Husbandry 101w or Horti-	
Animal Husbandry 100f	3 "	culture 115w or Field Crops	
² Veterinary Science 1f	5 "	107w	3 "
		Geology 2w	3 "
		³ Botany 100w	5 "
		Elective	2 "

SENIOR

<i>First Term</i>	<i>Second Term</i>
Elective	Elective

¹5 hours of Rural Economics or Rural Sociology required.

³Botany 100w or Veterinary Science 1f required.

B. FOUR-YEAR CURRICULUM FOR THE TRAINING OF TEACHERS OF VOCATIONAL AGRICULTURE

The curriculum in vocational agricultural teaching is designed to prepare teachers of agriculture for the secondary schools. The passage by Congress of the Smith-Hughes Act providing federal aid for those secondary schools giving approved courses in agriculture, home economics, or the trades is already creating a large demand for college trained teachers of agriculture. This curriculum has been arranged to meet the approval of the state and the federal boards of Vocational Education charged with the administration of the Smith-Hughes Act.

CURRICULUM FRESHMAN

<i>First Term</i>		<i>Second Term</i>	
Problems in Citizenship, including		Problems in Citizenship, including	
English Composition	5 hrs.	English Composition	5 hrs.
Chemistry 1f	5 "	Botany 1w	5 "
Animal Husbandry 1f	3 "	Field Crops 1w	5 "
Horticulture 1f	3 "	Military and Physical Education	2 "
Military and Physical Education	2 "		
	—		—
	18 "		17 "

SOPHOMORE

<i>First Term</i>		<i>Second Term</i>	
Chemistry 25f	5 hrs.	Zoology 1w	5 hrs.
Physics 1f	5 "	Soils 1w	5 "
Dairy Husbandry 1f	3 "	Botany 3w	3 "
Elective	3 "	Elective	3 "
Military and Physical Education	2 "	Military and Physical Education	2 "
	—		—
	18 "		17 "

JUNIOR

<i>First Term</i>		<i>Second Term</i>	
Veterinary Science 1f	5 hrs.	Agricultural Chemistry 101w ..	3 hrs.
Animal Husbandry 100f	3 "	Animal Husbandry 101w, Horticul-	
Methods of Teaching Plant Hus-		ture 115w, or Field Crops 107w	3 "
bandry E105f	3 "	Methods of Teaching Animal Hus-	
Educational Psychology A102f ..	3 "	bandry E107w	3 "
Organization and Management of		Animal Husbandry 3w	3 "
Vocational Agriculture in Sec-		Farm Shop Work 104w	2 "
ondary Schools E115f, w, sp, sm	2 "	Visual Education 150w	2 "
	16 "		16 "

SENIOR

<i>First Term</i>		<i>Second Term</i>	
Farm Machinery and Farm Motors		Grain Crops 101w	3 hrs.
2f	3 hrs.	Rural Sociology 115w	3 "
Supervised Teaching D155	5 "	Elective	7 "
Elective	4 "		

Students will be required to elect from the following courses a sufficient number of hours for graduation:

Advanced Live Stock Judging 102f	3 hrs.	Beef Production 103w	3 "
Applied Entomology 2f	3 "	Slaughtering of Domestic Animals	
Forage Crops 103f	3 "	and Cutting and Curing of Meats	
Farm Accounts 105f	3 "	4f or 4w	2 "
Agricultural Economics 2f	3 "	Vocational Guidance 5w	3 "
Stock Farm Sanitation and Disease		Rural Sanitation 5w	2 "
Prevention 104f or 105w	3 "	Elementary Poultry 2w	2 "
History of Agr. Education E160	1 "	Pork Production 105w	2 "
Field Crops Management 2w	2 "	Public Speaking, English 75f, w	2 "
Hort. 100f	3 "	Agr. Journalism 127w	3 "
		Soil Management 2w and sm ..	3 "

C. FOUR-YEAR CURRICULUM IN AGRICULTURE AND HOME ECONOMICS FOR WOMEN

The curriculum in agriculture and home economics for women emphasizes those phases of instruction in agriculture and home economics of special significance to the women primarily interested in agriculture. It is arranged to train women for positions of leadership and responsibility in home life, the teaching profession, and is especially adapted to the needs of women who expect to engage in extension work in home economics. The degree of Bachelor of Science in Agriculture is conferred upon completion of the required work.

Required Work. The student must complete a total of 122 hours including the requirements in physical training. Of the total number

of hours, 62 hours are fixed requirements as shown in the curriculum, 30 hours are major electives to be selected as indicated below, and 30 hours are free electives.

CURRICULUM

FRESHMAN

First Term

Home Economics 1f or w	5 hrs.
Chemistry 1f or w	5 "
Physical Training	½ "

Second Term

Botany 1f or w	5 hrs.
Chemistry 2f or w	3 "
Problems in Citizenship Including English Composition	5 "
Horticulture 1	1 "
Physical Training	½ "

SOPHOMORE

First Term

Chemistry 15f or w	3 hrs.
Home Economics 10f	2 "
*Home Economics 52f or w	3 "
Physiology 1f	5 "
Electives	2 "
Physical Training	½ "

Second Term

Botany 3f or w	3 hrs.
Home Economics 11w	2 "
Dairy Husbandry	3 "
Preventive Medicine 1w	2 "
Electives	5 "
Physical Training	½ "

JUNIOR

First Term

Rural Sociology	3 hrs.
Electives	12 "

Second Term

Rural Economics	3 hrs.
Electives	12 "

SENIOR

First Term

Electives	15 "
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Second Term

Electives	15 "
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*Students who have had no clothing construction work in the high school should elect Home Economics 50f or w for 5 hours instead of 52 for 3 hours.

Major Electives (30 hours). Students are required to select one of the three following groups of courses as a major elective.

(1) The plant group, which includes courses in botany, field crops, horticulture, soils, and entomology not prescribed in the curriculum.

(2) The animal group, which includes courses in zoology, animal husbandry, dairy husbandry, poultry husbandry and veterinary science not prescribed in the curriculum.

(3) The home economics group, in which the 30 hours must be chosen from one of the following lines of specialization:

A. *The Farm Home.*

Home Economics other than courses prescribed	18 hrs.
Animal Husbandry 5f	1 hr.

Any home economics or technical agricultural courses not prescribed 11 hrs.

B. Vocational Home Economics Teaching.

Home Economics other than courses prescribed 19 hrs.

Theory and Practice of Art 2f, 5 hrs.

Animal Husbandry 5f 1 hr.

Home Economics 145 Dress Design 3 hrs.

Of the 32 hours remaining, 15 must be given to the courses in education prescribed in the curriculum for training teachers in Vocational Home Economics. (See University catalog.)

C. Home Economics Extension.

Home Economics other than courses prescribed 16 hrs.

Education A102f (Ed. Psychology) 4 hrs.

Education D130f (Theory of Teaching) 3 hrs.

English, 75f (Public Speaking) 2 hrs.

Home Economics, 170f (Methods of Ext. Teaching in Home Economics) 2 hrs.

Home Economics, 175f and w (Ext. Practice Teaching) 3 hrs.

It is recommended that a part of the 30 hours of free electives be chosen from technical agricultural subjects.

D. Course for Training Food Chemists for Technical Laboratory Work.

Home Economics 120 5 hrs.

Home Economics 121 3 hrs.

Home Economics 130 5 hrs.

Chemistry 27 5 hrs.

Chemistry 121 5 hrs.

Agricultural Chemistry 101 3 hrs.

Special problems in Home Economics or Agricultural Chemistry 4 hrs.

Total 30 hrs.

STATEMENT OF COURSES

AGRICULTURAL CHEMISTRY

- 101w, sp and sm. **Agricultural Analysis.** (3)—Mr. Moulton, and Mr. Ritchie.
- 102w, sp, and sm. **Food Analysis.** (3)—Mr. Moulton and Mr. Ritchie.
- 110w, sp and sm. **Advanced Agricultural Analysis.** (3) to (5)—Mr. Moulton, Mr. Haigh, Mr. Ritchie.
- 115w. **Dairy Chemistry.** (3)—Mr. —————; Mr. Moulton.
- 200f, 201w, and 202 sp or sm. **Seminary.** (1)—Mr. Moulton.
- 204f. **Physiological Chemistry of the Domestic Animal.** (3)—Mr. Moulton.
- 205w. **Plant Chemistry.** (3)—Mr. Hooker.
- 211f, 212w, and 213sp and sm. **Research.**—Mr. Moulton, Mr. Haigh.

AGRICULTURAL EDUCATION

(E) Methods in Agriculture.

- E 105f, w, sp and sm. **Methods in Vocational Agriculture (Plant Husbandry).** (3)—Mr. Sexauer.
- E 107f, w, sp and sm. **Methods in Vocational Agriculture (Animal Husbandry).** (3)—Mr. —————.
- C 155w and sm. **Organization and Administration of Vocational Education.** (2)—Mr. Elliff.
- E 109f, w, sp and sm. **Methods in Teaching Laboratory Work in Vocational Agriculture.** (2)—Mr. Sexauer.
- E 115f, w, sp and sm. **Management of Vocational Agriculture in Secondary Schools.** (2)—Mr. Sexauer.
- E 150f, w, sp and sm. **Visual Education.** (2)—Mr. Ankeney.
- D 156f, D 157w, D 158sp and D 159sm. **Practice Teaching of Vocational Agriculture.** (Credit to be arranged)—Mr. Sexauer and Mr. Miller.
- E 160f, w, sp and sm. **History of Agricultural Education.** (1)—Mr. —————.
- E 170f, w, sp and sm. **Vocational Guidance in Agricultural Activities.** (3)—Mr. Sexauer.
- E 210f, w, sp and sm. **Special Problems in Vocational Agriculture.** (1)—Mr. Sexauer, and Mr. Ankeney.
- E 240f, w, sp and sm. **Seminary in Agricultural Education (Credit to be arranged).**—Mr. Sexauer, and Mr. Ankeney.

AGRICULTURAL ENGINEERING

- 1f. **Agricultural Drawing.** (2)—Mr. Wooley.
- 2f, sm. **Farm Construction Methods.** (2)—Mr. Wooley.
- 3f and w. **Farm Buildings.** (2 or 4)—Mr. Wooley.
- 10f, w and sp. **Farm Shop Practices.** (2)—Mr. Jones.
- 11f, w and sp. **Farm Gas Engines.** (3)—Mr. Jones.
- 20f and sm. **Farm Surveying.** (2)—Mr. Wooley.
- 21w. **Farm Drainage.** (2)—Mr. Wooley.
- 30w. **Farm Machinery.** (2)—Mr. Jones.
- 40w and sm. **Farmstead Equipment.** (2)—Mr. Wooley.
- 100f, 101w, 102s. **Special Problems.** (2-5)—Mr. Wooley and Mr. Jones.
- 112f and sp. **Farm Tractors.** (2)—Mr. Jones.
- 113w. **Automobiles.** (1)—Mr. Jones.
- 122w. **Irrigation and Drainage.** (2)—Mr. Wooley.

ANIMAL HUSBANDRY

- 1f, w, sp and sm. **Types and Market Classes of Livestock.** (3)—Mr. Chittenden, Mr. Fox, and Mr. Edinger.
- 2f and sm. **Breeds of Livestock.** (3)—Mr. Chittenden.
- 3w and sp. **Livestock Judging.** (3)—Mr. Chittenden.
- 4f and w **Slaughtering of Domestic Animals and Cutting and Curing of Meats.** (2)—Mr. Edinger.
- 100f, sp and sm. **Principles of Animal Nutrition.** (3)—Mr. Hogan.
- 101w and sm. **Animal Breeding.** (3)—Mr. Trowbridge.
- 102f. **Advanced Livestock Judging.** (3)—Mr. Weaver.
- 103w and sp. **Beef Production.** (3)—Mr. Weaver.
- 104w. **Sheep Production.** (2)—Mr. Fox.
- 105w and sm. **Pork Production.** (3)—Mr. Weaver.
- 106w. **Horse Production.** (2)—Mr. Chittenden.
- 107w. **Stock Farm Management.** (2)—Mr. Trowbridge.
- 200f, 201w. **Seminar.** (1)—Mr. Trowbridge.
- 202w. **Animal Nutrition.** (2)—Mr. Hogan.
- 203f, 204w, 205s. **Research in Animal Husbandry.**—Mr. Weaver, and Mr. Trowbridge.
- 206f, 207w, 208s. **Research in Animal Breeding.**—Mr. Mumford.
- 209f, 210w, 211s. **Research in Animal Nutrition.**—Mr. Hogan.

BOTANY

- 1f, w, sp and sm. **General Botany.** (5)—Mr. Robbins, Mr. Man-eval, Mr. Eyster, and Miss Lindsay.

3f, w, sp and sm. **General Bacteriology.** (3)—Mr. Robbins and Mr. Maneval.

10f. **Field Botany.** (1)—Mr. Eyster.

100w. **Plant Physiology.** (5)—Mr. Robbins.

102f. **Plant Pathology.** (3)—Mr. Maneval.

103w. **Advanced Plant Pathology.** (3)—Mr. Hopkins.

104f. **Historical Methods.** (2)—Mr. Robbins, Miss Lindsay.

106w. **Plant Breeding.** (3)—Mr. Eyster.

111f and 112w. **Special Problems.**—Mr. Robbins, Mr. Maneval.

200f and w. **Seminar.** (1)—Mr. Robbins, Mr. Maneval, Mr. Hopkins, Mr. Eyster.

201f and w. **Advanced Plant Physiology.** (2-5)—Mr. Robbins.

202f, 203w, 204s. **Research.**—Mr. Robbins, Mr. Maneval, Mr. Hopkins, Mr. Eyster.

CHEMISTRY

1f, w, sp and sm. **General Inorganic Chemistry.** (5)—Mr. Schlundt, Miss Dover, Mr. Peters, and Assistants.

2f, w, sp and sm. **General Inorganic Chemistry.** (3)—Mr. Kriege.

15f, w, sp and sm. **Elementary Organic Chemistry.** (3)—Mr. French.

25f, w and sp. **Analytical Chemistry.** (5)—Miss Dover, Mr. Stearn.

CITIZENSHIP

1f and 2w. **Citizenship.** (5)—Mr. Loeb.

DAIRY HUSBANDRY

1f, w and sm. **Elements of Dairying.** (3)—Mr. Swett, Mr. Turner.

100w. **Milk Production.** (4)—Mr. Ragsdale, Mr. Swett, Mr. Turner.

101w. **Dairy Feeding.** (1)—Mr. Ragsdale, Mr. Turner.

102f and w. **Dairy Bacteriology.** (4)—Mr. Reid, Mr. Nelson.

103w. **Market Milk.** (4)—Mr. Reid, Mr. Nelson.

104f. **Dairy Products** (5)—Mr. Reid, Mr. Nelson.

106f, w, sp and sm. **Special Problems.** (Credit to be arranged)—Mr. Ragsdale, Mr. Swett, Mr. Reid, Mr. Brody.

201f and 202w. **Seminar.** (1)—Mr. Ragsdale, Mr. Reid, Mr. Brody.

204f, 205w, 206sp and sm. **Research in Dairy Husbandry.**—Mr. Ragsdale, Mr. Swett.

207f and 208w. **Research in Biochemical Phases of Dairy Husbandry.**—Mr. Brody.

210f, 211w, 212sp and sm. **Investigations in Dairy Manufactures.**—Mr. Reid.

ENTOMOLOGY

2f, w, sp and sm. **Applied Entomology.** (3)—Mr. Haseman; Mr. Sullivan.

103w. **Insect Anatomy.** (2)—Mr. Haseman.

104f. **Classification of Insects.** (2)—Mr. Sullivan.

109f, sp and sm. **Beekeeping.** (2)—Mr. Haseman; Mr. Sullivan.

110w and s **Insects of the House, Garden, and Home Premises.**

(2) **Lectures and field work.**—Mr. Haseman, Mr. Sullivan.

11f. **Insects of Field Crops.** (2)—Mr. Haseman.

11sw. **Insects of Live Stock and Poultry.** (2)—Mr. Sullivan.

113f. **Insects of the Orchard and Truck Crops.** (2)—Mr. Haseman, Mr. Sullivan.

114f. **Field Practices in Insect Control.** (2)—Mr. Haseman.

115w. **Relation of Insects to Disease.** (3)—Mr. Haseman, Mr. Sullivan.

116f. **Morphology, Histology, and Development of Insects.** (3)—Mr. Haseman.

200f, 210w, and 202s. **Research.**—Mr. Haseman, Mr. Sullivan.

203f and 204w. **Seminar.** (1)—Mr. Haseman, Mr. Sullivan.

FIELD CROPS

1f, w and sm. **Field Crops.** (5)—Mr. Etheridge, Mr. Stadler.

2w and sm. **Field Crops Management.** (2)—Mr. Helm.

101w. **Grain Crops.** (3)—Mr. Etheridge, Mr. Stadler.

102f. **Grain Grading and Marketing.** (2)—Mr. Letson.

103f. **Forage Crops.** (3)—Mr. Helm.

104f. **Fiber Crops.** (2)—Mr. Etheridge.

105w and sp. **Field Crops Improvement.** (3)—Mr. Stadler.

106w. **Research Methods.** (2)—Mr. Etheridge, Mr. Stadler.

107w. **Extension Methods.** (1)—Mr. Carter, Mr. Kirkpatrick.

108f, 109w, 110s. **Special Problems.** Credit to be arranged. The teacher may be elected.

201f, 202w and 203s. **Research.**—Mr. Etheridge.

204f and 205w. **Seminar.** (1)—Mr. Etheridge.

GEOLOGY

1f, w and sp. **Principles of Geology.** (5)—Mr. Branson, Mr. Tarr, Mr. Mehl.

2f, w and sp. **Physical Geology.** (3)—Mr. Branson, Mr. Tarr, Mr. Bratton.

HOME ECONOMICS

1f, w, sp and sm. **Selection and Preparation of Food.** (5)—Miss Stone, Miss Whipple.

10f. **Household Problems.** (2)—Miss Stanley, Miss Blakey.

11f, w, sp and sm. **Food Problems of the Household.** (2)—Miss Blakey.

50f, w and sp. **Elementary Clothing.** (5)—Miss Gleason, Miss Caton.

52w. **Principles of Selection and Construction of Clothing.** (3)—Miss Gleason, Miss Caton.

55w. **Millinery.** (2)—Miss Gleason.

60f, w, sp and sm. **Home Nursing.** (2)—Miss Taylor.

101f, w, sp and sm. **House Sanitation.** (3)—Mrs. Rosa.

110f and sp. **House Planning and Furnishing.** (3)—Miss Arnold.

115f, w, sp and sm. **Household Management.** (3)—Mrs. Rosa, Miss Blakey.

120f and sp. **Food and Nutrition.** (5)—Mrs. Watkins, Miss Whipple.

121w and sm. **Dietetics.** (3)—Mrs. Watkins.

122sm. **Field Work in Dietetics.** (To be arranged).—Mrs. Watkins.

130f. **Metabolism and Dietetics.** (5)—Miss Stanley, Miss Whipple.

145f, sp and sm. **Dress Design.** (3)—Miss Arnold.

146sp. **Advanced Dress Design.** (3)—Miss Arnold.

150f and sp. **The Clothing Problem.** (5)—Miss Gleason, Miss Caton.

151w and sm. **Advanced Clothing.** (5)—Miss Gleason.

170w. **Methods of Extension Teaching in Home Economics.** (Credit to be arranged).—Miss Heyle.

175f and w. **Extension Practice Teaching in Home Economics.** (Credit to be arranged).—Miss Heyle.

200 w. **Home Economics Seminar.** (1)—Miss Stanley.

205f, s, and 206w. **Research in Food Preparation.**—Miss Stanley, Mrs. Watkins, Miss Blakey.

215sp and sm. **Supervision of Household Management.** (Credit to be arranged).—Mrs. Rosa, Miss Whipple.

221w. **Problems in Nutrition.**—Miss Stanley, Mrs. Watkins.

250f, s, and 251w. **Research in Clothing.**—Miss Gleason.

HOME ECONOMICS EDUCATION

F 110w. **Teaching of Vocational Home Economics.** (2)—Miss Stanley, Mrs. Rosa.

F 115w and sm. **Teaching of Applied Art.** (2)—Miss Arnold.

F 120f and sm. **Teaching of Applied Science.** (2)—Miss Blakey.

C 155w and sm. **Organization and Administration of Vocational Education.** (2)—Mr. Elliff.

D 160f, D 161w, D 162sp and D 163sm. **Practice Teaching of Vocational Home Economics.**—Mr. Meriam, Miss Bostian, Miss Steer.

F 175f. **Problems in the Administration of Vocational Home Economics.** (2)—Miss Stanley.

D 225f D 226w, D 227sp and D 228sm. **Supervision of Practice Teaching of Vocational Home Economics.**—Miss Stanley.

F 275f, w, sp and sm. **Research in Vocational Home Economics.**

HORTICULTURE

1f, w and sm. **General Horticulture.** (3)—Mr. Bradford, Mr. Major, Mr. Rosa.

3w. **Vegetable Gardening.** (3)—Mr. Rosa.

4f and 5w. **Floriculture.** (2 or 3)—Mr. Major.

100f and sm. **General Pomology.** (3)—Mr. Gardner.

101w. **General Pomology.** (2 or 3)—Mr. Gardner.

102f. **Elements of Landscape Gardening.** (5)—Mr. Major.

105f. **Systematic Pomology.** (5)—Mr. Gardner.

106f. **Commercial Vegetable Growing.** (3)—Mr. Rosa.

107f. **Plant Material.** (2)—Mr. Major.

108w and sp. **Plant Material.** (3)—Mr. Major.

112w. **Advanced Landscape Design.** (3)—Mr. Major.

113w. **Spraying.** (2)—Mr. Swarthwout.

114f and sm. **Fruit Handling.** (3)—Mr. Swarthwout.

115w and sm. **Evolution of Cultivated Plants.** (3)—Mr. Gardner.

116f, 117w, and 118s. **Special Problems.** Hours by appointment.—Mr. Gardner, Mr. Bradford, Mr. Hooker, Mr. Rosa, Mr. Major.

119w. **Vegetable Forcing.** (3)—Mr. Rosa.

130w. **History and Literature of Horticulture.** (2)—Mr. Gardner.

131sp. **Small Fruit Culture.** (3)—Mr. Swarthwout.

- 200f, 201w, and 202s. **Special Investigations.** Hours by appointment.—Mr. Gardner, Mr. Bradford, Mr. Hooker, Mr. Rosa, Mr. Major.
210f. **Methods of Horticultural Research.** (2)—Mr. Hooker.
215f and 216w. **Seminar.** (1)—Mr. Hooker, Mr. Gardner.

INDUSTRIAL ARTS

- 1f, w, sp and sm. **Woodwork.** (2)—Mr. Selvidge, Mr.
2f and w. **Metalwork.** (2)—Mr. Allton.
5sp and sm. **Tools and Materials.** (1)—Mr. Selvidge.
130w, sp and sm. **Furniture Construction.** (w-4), (sp, sm-2).—
Mr. Selvidge.

JOURNALISM

- 127w. **Agricultural Journalism.** (3)—Mr. Childers.

METEROLOGY

- 1w. **Meterology** (1)—Mr. Reeder.

PHYSICS

- 1f, w and sm. **Elementary Physics.** (5) .

POULTRY HUSBANDRY

- 1f, sp and sm. **Elementary Poultry Raising.** (3)—Mr. Kempster.
2w and sm. **Poultry Production.** (3)—Mr. Kempster.
103f. **Marketing Poultry Products.** (3)—Mr. Kempster.
104f. **Poultry Judging and Breeding.** (3)—Mr. Kempster .
105w. **Poultry Farm Management** (3)—Mr .Kempster.
106sp and w. **Incubating and Brooding Practice.** (3)—Mr.
Kempster.
200f and 201w. **Seminar.** (1)—Mr. Kempster.
202f, 203w and 204s. **Research in Poultry Husbandry.**—Mr.
Kempster.

RURAL LIFE

- 2f, w and sp. **Principles of Rural Economics.** (3)—Mr. Gromer.
3f, w and sp. **Application of the Principles of Rural Economics.**
(2)—Mr. Gromer.
101w and sp. **Marketing and Distribution.** (3)—Mr. Johnson.
103f. **History and Principles of Cooperation.** (2)—Mr. Gromer.
105f and sp. **Farm Accounts.** (3)—Mr. Frame.

- 107f w, and sp. **Farm Finance.** (3)—Mr. Gromer.
110w and sp. **Farm Organization.** (3)—Mr. Johnson, Mr. Frame.
111f. **Farm Labor, Wages and Prices.** (2)—Mr. Johnson.
112f and sp. **Advanced Cost Accounting.** (2)—Mr. Frame.
113w and sp. **Farm Administration.** (2)—Mr. Johnson.
115f, w and sm. **Rural Sociology and Rural Social Problems.**—
(3)—Mr. Hall.
116w. **Land Utilization.** (2)—Mr. Johnson.
120f and sp. **Agricultural Geography.** (2)—Mr. Gromer.
121w. **European and American Agricultural History and Policy.**
(2)—Mr. Gromer.
200f, w and sp. **Seminary.** (Arranged)—Mr. Johnson, Mr. Gromer, Mr. Hall, Mr. Frame.
205f, w and s. **Special Problems. Thesis Required.**—Mr. Johnson, Mr. Gromer, Mr. Hall, Mr. Frame.

SOILS

- 1f, w and sm. **Soils.** (5)—Mr. Miller, Mr. Albrecht, Mr. Duley.
2w and sp. **Soil Management.** (3)—Mr. Miller.
100f. **Soil Fertility.** (3)—Mr. Albrecht.
102w and sp. **Soil Surveying.** (2)—Mr. Krusekopf.
104f. **Soils of the United States.** (2)—Mr. Miller.
105w. **Soil Bacteriology.** (3)—Mr. Albrecht.
106f, 107w, and 108sp and sm. **Special Problems.** (2-5)—Mr. Miller, Mr. Albrecht, Mr. Duley.
200f and 201w. **Seminar.** (1)—Mr. Miller.
205f, 206w, and 207sp and sm. **Soil Research.**—Mr. Miller, Mr. Albrecht, Mr. Duley.

VETERINARY SCIENCE

- 1f. **Veterinary Anatomy and Physiology.** (5)—Mr. Backus.
2f and w. **Veterinary Medicine and Surgery.** (3)—Mr. Backus.
103f. **Veterinary Medicine.** (3)—Mr. Backus.
104f and sp. **Stock Farm Sanitation and Disease Prevention.**
(3)—Mr. Connaway, Mr. Durant, Mr. Crisler.
105w. **Stock Farm Sanitation and Disease Prevention.** (3)—Mr. Connaway, Mr. Durant, Mr. Backus.
106f. **Diseases of Poultry.** (1)—Mr. Durant.
207f, 208w, and 209s. **Research.** Hours by arrangement.—Mr. Connaway, Mr. Backus, Mr. Durant.

ZOOLOGY

1f, w, sp and sm. **General Zoology.** (5)—Mr. Lefevre, Mr. Curtis, Mr. Glascock, Mr. Tannreuther.

For further information regarding the Four-Year Curriculum in Agriculture for Men, the Four-Year Curriculum for the Training of Teachers of Vocational Agriculture, and the Four-Year Curriculum in Agriculture and Home Economics for Women write to

F. B. MUMFORD,
DEAN, COLLEGE OF AGRICULTURE,
UNIVERSITY OF MISSOURI,
COLUMBIA, MISSOURI.

D. TWO-YEAR WINTER COURSE IN AGRICULTURE (SHORT COURSE)

GENERAL STATEMENT

The purpose of the two-year winter course in agriculture, which is more often called the Short Course, is to teach better farming methods and to develop a better knowledge of the business of farming. It is essentially a practical course for practical farmers. More than 3,500 young men and women have enrolled in this course and each of these has become a better farmer by reason of the instruction obtained. At present, 300 men and women annually enroll in this course. They come from nearly every county in Missouri and from many adjoining states.

The short winter course gives the largest possible amount of practical instruction in judging, breeding, and growing corn and other grains and forages; in soil fertility, field crops, and farm buildings; in live stock judging, stock feeding, animal breeding, and live stock farming; in growing, handling, and selling orchard products; in breeding, feeding and handling dairy cows; in making ice cream, butter and cheese, and handling milk products; in farm butchering and meat curing, in diseases of farm animals and their treatment; in injurious insects; in farm carpentry and blacksmithing, and handling farm machinery, tractors, and gas engines; in poultry raising; in farm management; in the keeping of farm accounts; and in rural problems, cooperation, etc.

Admission. Any person more than 16 years old may enroll for instruction in the two-year winter course. No entrance examinations are given, but those admitted are supposed to have at least the equiv-

alent of a common school education before entering. The work given is so flexible that many persons of mature years and much experience have found it profitable to attend this course along with young men and women not yet out of their teens. It is not uncommon to find a boy of 18 years attending classes along with a matured and successful farmer more than 40 years old. Sometimes father and son both attend the course.

Time. The two-year winter course is arranged for the convenience of farmers. All of the work comes in November, December, January, and February. One can work on the farm eight months of the year and go to the short course the other four.

The course is divided into four terms. Two terms are offered each year. Each term is eight weeks long. The first term of the short course begins Monday, October 31, 1921, and the second term, January 2, 1922.

Each of the four terms is complete within itself. All the subjects taught in each term are finished at the end of the term, so that each term is a complete eight weeks' short course. Students can enter in November or January, which ever is most convenient.

Expenses. Students in the two-year winter course pay no tuition. A library, hospital and incidental fee of \$25 for two terms provided the student registers and pays the fee for both terms at the opening of the course in the fall, or \$15 for one term, is required of all students, and a laboratory fee in those departments in which the students use materials.

Most of the instruction is given by lectures and demonstration. Books, however, are recommended, and it is desirable that the winter course students add to their libraries by the purchase of a few standard books on agriculture.

Certificate. Students who complete the required work of the two-year winter course will be given a certificate of graduation.

THE COURSE OF STUDY

In each term the student is required to take certain subjects. In addition to those required, he is permitted to choose one or more of the optional subjects open to him during that term. The required and optional subjects for each term are listed on the following pages. In each term the required subjects cover generally the branches of agriculture practiced on Missouri farms. The student may then choose from the optional subjects those relating to the phases of farming in which he is most interested. A student does not have a full course unless he takes all the required subjects and the full number of optional subjects indicated for each term.

Attention is directed to the fact that one may study along five special lines of farming by proper selection of the optional subjects during the four terms of the Two-Year Winter Course. He may train himself for the pure bred live stock business, the pure seed growing business, fruit growing, poultry raising or dairying. The teachers who assist in registration are prepared to advise students in the selection of optional courses.

If a student enters the University October 31, 1921, for the first time, he will take the courses under *First Year, First Term*. If he returns January 2, 1922, he will take the courses under *First Year, Second Term*. If a student cannot enter at the opening of the course on October 31, 1921, he can enter without much inconvenience for the first time, January 2, 1922. If he enters then he will take the courses listed under *First Year, Second Term*, arranged especially for those who enter then for the first time and outlined on page 45. This is the same course taken by those who entered for the first time at the beginning of the first term except that a course in stock judging adapted to the beginner is given, and the poultry course required of all students in the first term is included.

If he returns for the first term of 1922, he will then take the *First Year, First Term* courses. Those who have completed both terms of the first year will enter the *Second Year, First Term*.

All the work is thoroly practical. Much of the instruction is given by having students actually do the work under the proper direction. The course is being definitely connected up with the Agricultural Extension Service of the University. It is planned to have the student continue his study of agricultural problems on his home farm when he leaves the short course. He will do this as a cooperator or demonstrator for the Agricultural Extension Service, working under the direction of some of the extension workers.

FIRST YEAR, FIRST TERM

October 31, 1921, to December 21, 1921.

Required	Periods a week	Elective	Periods a week
Cereal Crops and Grain Judging	5	Farm Construction Methods	4
Farm Dairying, or	3	Farm Beekeeping	3
Farm Horticulture	3	Fruit Packing	3
Judging Market Grades and Classes of		Woodworking	3
Live Stock	3	Forging	3
Feeds and Feeding	5	Farm Dairying Laboratory	2
Farm Poultry Management	3		
Physical Training	2		

FIRST YEAR, SECOND TERM

January 2, 1922, to February 24, 1922.

Required	Periods a week	Elective	Periods a week
Prevention and Treatment of Animal Disease	4	Pork Production	3
Farm Dairying, or	3	Beef Production	3
Farm Horticulture	3	Spraying	3
Judging Types and Breeds of Farm Animals	3	Vegetable Gardening	3
Soil Tillage	3	Poultry Judging	3
Forage Crops	4	Farm Dairy Laboratory	2
Physical Training	2	Advanced Forging	3
		Dairy Cattle Judging	2
		Farm Machines & Engines	4

SECOND YEAR, FIRST TERM

October 31, 1921, to December 21, 1921.

Required	Periods a week	Elective	Periods a week
Injurious and Beneficial Insects	3	Crop Rotations	3
Infectious Diseases and Farm Sanitation	3	Advanced Farm Machinery, Gas Engines and Tractors	4
Farm Accounts	3	Farm Construction Methods	4
Soil Fertility, Manures and Fertilizers	3	Breeds of Livestock	3
Rural Economics	3	Horse Production	3
Physical Training	2	Sheep Production	3
		Farm Poultry Practice	3
		Fruit Packing	3
		Woodworking	3
		Forging	3

SECOND YEAR, SECOND TERM

January 2, 1922 to February 24, 1922.

Required	Periods a week	Elective	Periods a week
Animal Breeding	3	Farm Butchering, Cutting and Curing of Meats	3
Physical Training	2	Advanced Live Stock Judging	3
Farm Marketing	3	Advanced Grain Judging	3
		Soil Management	3
		Farm Sanitary Equipment	2
		Cooperative Banking	3
		Spraying	3
		Vegetable Gardening	3
		Incubation and Brooding Practice ..	3
		Advanced Forging	3
		General Farm Management	3
		Milk Production	3
		Rural Social Problems	2

FIRST YEAR, SECOND TERM

January 2, 1922 to February 24, 1922.

For those who enter for the first time at the beginning of the second term.

Required	Periods a week	Elective	Periods a week
Prevention and Treatment of Animal		Spraying	3
Diseases	3	Woodworking	3
Farm Dairying, or	3	Forging	3
Farm Horticulture	3	Dairy Cattle Judging	2
Judging Market Grades and Classes of		Farm Machinery & Engines	4
Live Stock	3	Farm Dairying Laboratory	2
Soil Tillage	3		
Forage Crops	4		
Farm Poultry Management	3		
Physical Training	2		

E. SHORT COURSE IN HOME ECONOMICS FOR WOMEN

The Short Course for Women lasts eight weeks. It begins October 31, 1921, and ends December 21, 1921. The time corresponds to the first term of the Two-Year Winter Course. Work is given in those subjects with which a woman as a practical home-maker should be familiar. Economy in the management of household affairs is the keynote of the whole course. The student learns how to save material, time, and labor. The course offers the kind of knowledge which a woman can apply in her every-day housework and relations to the farm. In addition to the courses in home economics, practically all the work offered in the Two-Year Winter Course for men is open to the women who desire to elect any of these courses.

Entrance Requirements. Any woman more than 16 years old may attend. Older women who have had the care and responsibility of managing a house will find much that will interest them, and, because of their experience, they will derive even greater benefit from the course than girls who are less experienced. It is desirable that all students should have at least a common school education. There are no entrance examinations.

Fees and Expenses. There is no tuition fee, but each student pays an incidental fee of \$15 and small laboratory fees to cover cost of materials used.

COURSE IN HOME MAKING

Food Preparation	5
Meal Planning	5
Sewing or The Dress Problem	5
Household Management (with Laboratory work in the practice house)	3
Home Nursing	2
Millinery	3

COURSE IN TRADE DRESSMAKING

This is a course planned for young women who wish to know dressmaking thoroly for their own use or as a means of making money in the home. The students spend full time in the dressmaking shop. This time is divided approximately as follows (based on 5 hours' class work a day, five days a week for seven weeks).

Construction	103	hours
Drafting	18	"
Designing	36	"
Selection of Material	18	"

The foregoing division is varied to suit the needs of the individual.

F. SPECIAL CREAMERY COURSE

This course includes a study of the fundamental principles involved and practical work in manufacturing, handling and marketing of creamery butter, ice cream, certain other products such as cottage cheese, cultured milk, etc., and the production and handling of market milk. It prepares men for the best positions in creameries, market milk and ice cream plants and for the operation of large private dairies where the production and handling of milk or the manufacture of dairy products is an important feature. Any creameryman, ice cream maker or milk plant man wishing to advance himself or others planning to get into dairy manufacturing work should take this course. The demand for capable trained men along these lines exceeds the supply. This course begins January 2 and ends February 24, 1922.

Each student who enters this course will pay the usual laboratory fees, which total approximately \$15.00 and the library, hospital and incidental fee of \$15.00.

OUTLINE OF THE COURSE

	Lecture Periods	Laboratory Periods.
Elements of Dairying	24	16
Milk Production	24	0
Market Milk	16	8
Dairy Mechanics & Refrigeration	0	16
Creamery Buttermaking	16	16
Ice Cream Making	16	16
Dairy Bacteriology	8	8
Judging Dairy Products	0	8
Creamery & Milk Plant Management	8	0

For further information concerning the Short Winter Courses in Agriculture, write to the SUPERINTENDENT OF SHORT COURSES, UNIVERSITY OF MISSOURI, COLUMBIA, MISSOURI.

G. THE FARMERS' WEEK SHORT COURSE

In January each year the College of Agriculture offers a short course in agriculture for farmers in connection with the Farmers' Week program arranged in co-operation with the State Board of Agriculture, and the various agricultural associations of the state. In this course special lectures and demonstrations in soils, farm crops, animal husbandry, dairying, farm engineering, horticulture, farm management, entomology, rural economics, veterinary science, poultry farming and home economics are given in the classrooms, laboratories, and live stock pavilion belonging to the University.

This course will be given again in January, 1922.

FACULTY

- ALBERT ROSS HILL, A. B., Ph. D. LL. D.,
President, Professor of Educational Psychology
- F. B. MUMFORD, B. S., M. S.,
Dean, Faculty of Agriculture, Director Agricultural Experiment Station. Professor of Animal Husbandry
- HENRY MARWIN BELDEN, A. B., Ph. D.,
Professor of English
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Professor of Geology
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- ZORA GOODWIN CLEVENGER
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WILLIAM ERNEST PERSONS

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Professor of Dairy Husbandry

GEORGE REEDER,

Lecturer on Meteorology and Climatology. Director of the Missouri Climatological Service. Meteorologist, United States Weather Bureau.

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Professor of Botany

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State Leader of County Agents

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THE
UNIVERSITY OF MISSOURI
BULLETIN

GENERAL SERIES

EDITED BY

CHARLES E. KANE

University Publisher

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VOLUME 22, NUMBER 17

2 1922

TWO YEAR WINTER COURSE IN AGRICULTURE

ANNOUNCEMENT 1921-22



AGRICULTURAL BUILDING

In the year 1920 systematic instruction in agriculture was given to 1550 students.

ISSUED THREE TIMES MONTHLY; ENTERED AS SECOND-CLASS MAT-
TER AT THE POSTOFFICE AT COLUMBIA, MISSOURI—10,000

JUNE, 1921

TWO YEAR WINTER COURSE IN AGRICULTURE CALENDAR FOR 1921-1922

1921

FALL TERM

October 31.....	Monday, 8 a. m. to	{ First Term, Two Year Winter Course in Agri.
December 21.....	Wednesday, 4 p. m.	
November 24.....	Thursday, Thanksgiving Day, holiday	
December 21.....	Wednesday, 4 p. m., Fall term closes	

1922

WINTER TERM

January 2.....	Monday, 8 a. m.	{ Second Term, Two Year Winter Course in Agri.
February 24.....	Friday noon	
February 22.....	Wednesday, Washington's Birthday, holiday	

The Short Course is given at the time of year when farmers can attend.

The only entrance requirement is that students be over sixteen years of age and have a common school education or its equivalent.

A statement of the cost of the course will be found on page 45.

Plan to be in Columbia October 30 or 31, 1921 (January 1 or 2, 1922, for the second term).

Go to the Young Men's Christian Association where you will be given help in locating a place to live.

Registration will begin in the office of the Superintendent of Short Courses in the Agricultural Building at 9 o'clock on October 31, 1921, and on January 2, 1922.

The Two Year Winter Course in Agriculture

The Two Year Winter Course in Agriculture is designed and offered primarily to meet the needs of farmers who cannot enter the Four Year Course in Agriculture on account of lack of previous training, money, or time.

VALUE OF TWO YEAR WINTER COURSE

The value of the Two Year Winter Course has been clearly demonstrated. The Short Course, as it is generally called, offers the quickest and cheapest method of learning how to farm better.

BENEFITS DERIVED FROM THE SHORT COURSE

A survey has been made of the graduates of the Two Year Winter Course and it has been found that they had increased their yield of corn 20 per cent; that they had sold 65 per cent more hogs, 25 per cent more cattle and 70 per cent more sheep; that they had greatly increased the per cent of pure bred animals kept in all species.

MONEY VALUE OF THE SHORT COURSE

The Missouri College of Agriculture has made an investigation in one of the counties of the state of the incomes of 554 farmers and found that the educated farmer's income was 71.4 per cent larger than that of the untrained farmer.

The Kansas State Agricultural College has made a survey of the incomes of 635 farmers in seven counties and found that the trained farmer has a greater income by nearly \$1,000 a year than those farmers with a common school education.

The United States Department of Agriculture reports a survey of three representative areas in Indiana, Illinois, and Iowa. It is shown that tenant farmers with a college education received an average labor income of \$979 more a year than the man with only a common school education.

Cornell University reports that men having more than a high school education received \$529 a year more than the farmer with only a common school education.

The Nebraska Agricultural Experiment Station reports that farm-

ers who attended college increased their labor income 51.8 per cent over the farmer with only a common school education.

There is no question but that the money invested in higher education is the best investment a man can make.

LEADERSHIP

Only one per cent of the total population of the United States are college men yet from this one per cent come seventy-three per cent of the leaders in our national life. Ninety-nine per cent of our population, or the group having no college education, furnish only twenty-seven per cent of the leaders.

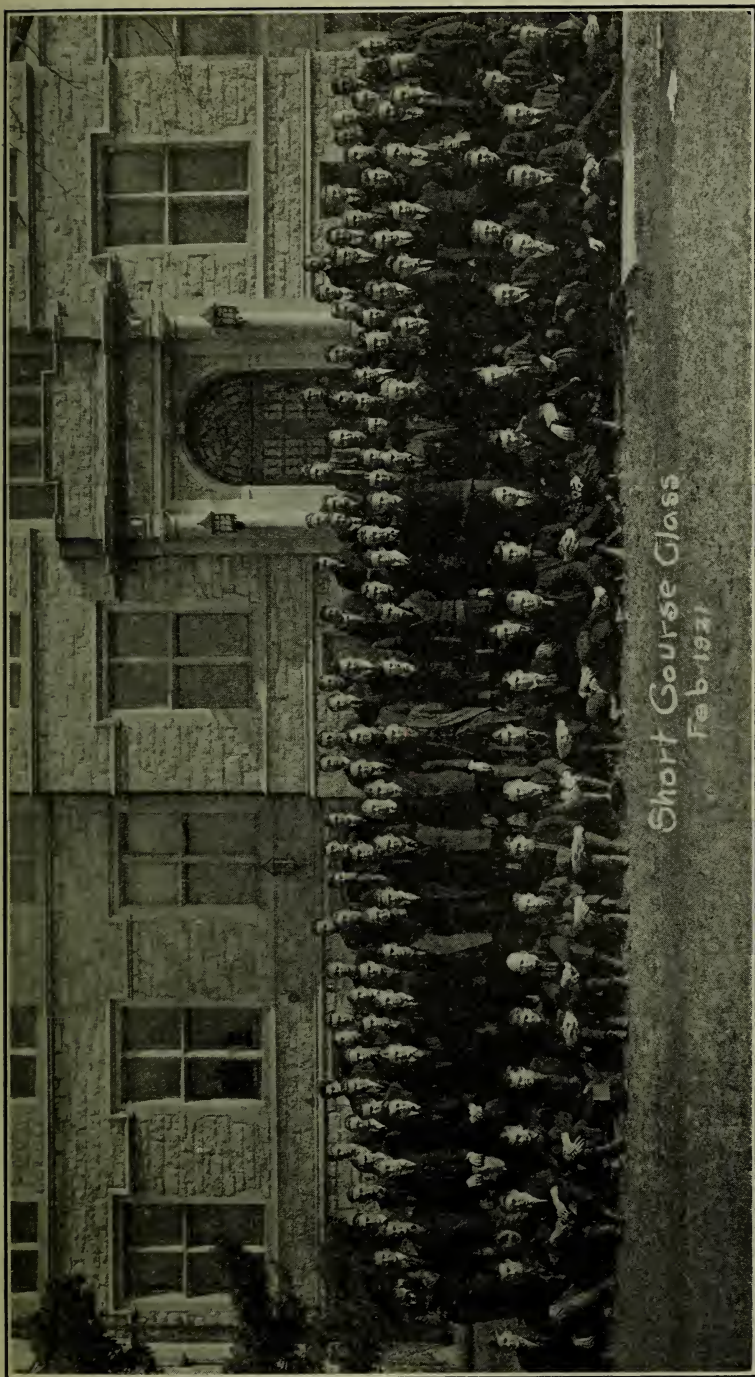
Leaders are becoming more and more necessary in the farming districts of this country. The farmers are rapidly becoming a powerful factor in national affairs. Through such farmers' organizations as the Farm Bureau, Grange, Farmers' Unions and others, the farmer is in a position to exercise great influence and to render exceptional service in directing the affairs of the nation. To do this efficiently, he must know the farmers' problems. Every Short Course student has become a leader in his home community and is expected to be one of the strongest supporters of all progressive and beneficial agricultural movements.

WHAT THE STUDENTS THINK OF THE SHORT COURSE

The following statements are from Short Course students and are representative of the opinion of every man who has ever been enrolled in the Short Course.

"It is difficult in a few words to enumerate and do proper justice to the benefits which I have received by taking the Short Course. From a financial standpoint the course cannot be duplicated for the same amount of money. I have found in planning and organizing my farm business that I could not afford to be without the information received for many times what it has cost me. However, the biggest thing I obtained through the Short Course was the friends I made. My association with faculty members and boys from the best rural families in Missouri and other states, has given me a broader view and better appreciation of agriculture in general. I can heartily recommend the Short Course to every farm boy"—U. E. Norris, Urich, Missouri.

"The eight months that I spent in the Short Course were worth far more to me than the same period of time could have been spent anywhere else. The friends that I made while in the Short Course



Short Course Class
Feb 1931

Some of the students in the Short Course 1920-21 Everyone has received systematic training in agriculture and is a better farmer on account of it

are worth ten times what it cost me. I think that any young man who is going to farm could well spend the eight months in the Short Course."—Louis Rodhouse, Pleasant Hill, Illinois.

"I am just beginning to realize what the Two Year Winter Course in Agriculture has done for me. In fact, I think it is the best time I ever spent and only regret that it is all over."—K. C. Anderson, Gideon, Missouri.

"Although having spent two years in college, I can sincerely say that for the amount invested, the Short Course provides the best education there is for a farmer. The teachings are definite and applicable to every Missouri farm. It not only pays for itself many times over in money but makes farming a genuine pleasure instead of just labor. The "Shorthorns" are a bunch of fellows that do things and it is a real advantage and joy to associate with them. I think that I can truly say that I never spent a more pleasant and profitable time in my life than that I spent in the Short Course."—Clay T. Davis, Braymer, Mo.

"I consider the Two Year Winter Course in Agriculture the best means for any Missouri farm boy to prepare himself for a profitable and happy life on the farm. One receives training and instruction along most every line of agriculture and after having completed the course is able to apply his scientific knowledge of farming very successfully. I am sure the time I have spent in the Short Course has been very helpful and pleasant to me."—Farris T. Turner, Eagleville, Missouri.

"Personally, I cannot too highly recommend the Short Course. It broadens and widens one's knowledge in agriculture to such an extent that years would be required to secure this knowledge by actual farming. It also prepares the young farmer with practical methods for handling the many perplexing problems which arise, whether they are with crops or live stock. The professors and students are a splendid set of gentlemen and to be thrown in contact with them during this course is a great opportunity for one to widen his group of acquaintances and friends. Long live the Short Course!"—George C. Mermoud, Monett, Missouri.

TIME

The Two Year Winter Course in Agriculture is offered at the time of year when it is possible to leave the farm. Not much work can be accomplished on the farm during the winter months, so this time can be made much more valuable by learning more profitable methods of farming.



SHORT COURSE GRADUATES
Some of the future agricultural leaders of Missouri

The work of the Short Course is offered in four divisions or terms of eight weeks each, extending over a period of two years. Students may enter at the beginning of any term.

The first term begins October 31, 1921, and closes December 21, 1921. The second term begins January 2, 1922, and closes February

25, 1922. THE WORK OF EACH TERM IS COMPLETE IN ITSELF, and even if it is not possible for the student to continue longer than one term, he is greatly benefited by the work.

ENTRANCE REQUIREMENTS

The only entrance requirement is that the student be sixteen years of age or older. There are no entrance examinations.

The Two Year Winter Course is arranged so that students who have had no more schooling than that afforded by the common schools can satisfactorily do the work. About one-third of those who attend have had no more than an eighth grade education. Most of the others have had some high school or academy training. Experience in farm work is of great value in helping a student get the most out of the work. Men and women of mature years who have had the responsibility of managing a farm or home will find the course of real value.

Among the most enthusiastic students who have taken the course and who give it their hearty endorsement are some of the large farmers and stockmen of Missouri. Mature men and women of average ability who are willing to work hard will get along well with even less preparation than is afforded by the common schools.

High school graduates and college graduates who lack the practical facts of scientific agriculture find in this course the information they seek. The work is so elastic that those with advanced preparation are able to occupy their time as fully as those who come without the preparation of the high school but with the practical preparation of the farm.

EQUIPMENT

All the equipment of the University that is necessary for the instruction of short course students is available for that purpose.

BUILDINGS

Agricultural Building: A two-story structure with a high basement and an auditorium seating 500 persons. More than 1,000 stu-

dents may be accommodated at one time in classrooms and laboratories. The building includes offices of the dean and director, the seed-testing laboratory, the agricultural library, the departments of soils, farm crops, animal husbandry, rural life, agricultural education, and the agricultural extension service. The short course men make their headquarters in this building.

Horticultural Building: A stone building, two stories high, having a well-lighted basement with plant house and insect room, class-



SCHWEITZER HALL

All the fertilizers used in Missouri are analyzed in this building. It also contains a complete refrigeration plant, laboratories, and classrooms for the study of the cutting and curing of meats.

rooms, laboratories, offices and preparation rooms for horticulture and entomology. In this building students learn how to make grafts and buddings and other methods of propagating plants, study methods of growing fruits and how to control insect pests of farm crops.

Dairy Building: A stone building, two stories with cheese-curing room in the basement, rooms for creamery work, cheese making, dairy work, milk-testing laboratory, offices, and classrooms.

Live Stock Pavilion: A Live Stock Judging Pavilion is available for the teaching of live stock judging. This building is adjacent to the barns on the University farm. It is of steel and wood construction. The outside dimensions are 90x160 feet. The arena is 50x120 feet. It has a seating capacity of 1,500. The arena can be divided by dropping a large curtain, making it possible to hold two large classes in stock judging at the same time. The building includes in addition offices, practicum rooms, locker rooms, and shower baths. It is also used as a gymnasium by the short course students.

Veterinary Building: The veterinary department is housed in



THE LIVESTOCK PAVILION

This building contains an arena 50x120 feet and is used for livestock judging. It also contains classrooms and offices.

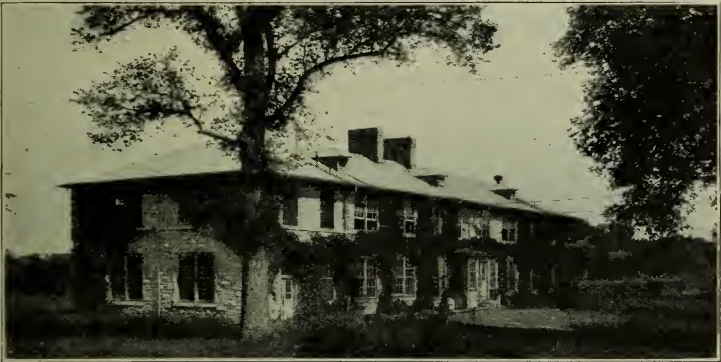
a three-story building devoted exclusively to investigation and instruction in veterinary science. The building contains laboratories for anatomy, physiology, investigations in contagious and infectious diseases, the preparation of hog-cholera serum, and operating rooms where short course men learn to perform simple surgical operations.

Poultry Building: A two-story building, including general office, incubator room equipped with various types of incubators, classrooms, and laboratory.

The poultry department has one fifteen-pen laying and breeding

house, a feed house with killing pen in the basement, two farm poultry houses, one experimental breeding house, and ten portable colony houses. Several hundred fowls, representing the popular varieties, are kept for instruction and experimental purposes so that students who are interested in raising high class poultry have ample opportunity for study.

Rothwell Gymnasium and Athletic Field: University students use the gymnasium and athletic field for a large part of their recreation. The gymnasium is provided with basketball courts, and has up-to-date lockers and shower baths. Of course the athletic field is good to give training in track, football, baseball, soccer, etc.



DAIRY BUILDING

A model creamery is maintained in this building. In addition there are classrooms, laboratories, and offices.

Farm Machinery: A large stone building is equipped with the latest types of tillage machines, self-binders, mowers, corn planters, hay loaders, manure spreaders, gasoline engines, and tractors. Instruction in farm construction methods is given in this building.

Home Economics Building: This building is just being completed. It will contain well equipped cooking and sewing laboratories and classrooms.

Greenhouses: Six greenhouses are available for instruction and investigation. Three greenhouses, each 25x100 feet; two, each 16x100 feet, and one, 25x50, embracing a total of 10,350 square feet under glass are used by the departments of horticulture, entomology, botany, soils, and farm crops. In addition to this there are 2,000 square feet of hot bed and cold frame space under glass. This glass space af-

fords facilities for the short course students to put into practice things taught in the classroom that cannot be observed in the field in winter.

Horse Barn: This is a large stone basement barn originally designed for a beef cattle barn. It has been recently remodeled. It contains a number of box stalls, open stalls, and a convenient harness room. A 250-ton stone silo is in connection. Adjoining it is a large machinery shed where the wagons and farm machinery used in operating the farm are housed.

Dairy Barn: The dairy barn is modern in every detail. It has room for seventy-five cows. It is equipped with box stalls, calf pens, and the usual stanchion equipment for cows. Large feed bins are in the loft, from which mixed feed is carried in chutes to the feed room. In connection are two concrete silos with a capacity of 130 tons each.

Sheep Barn: The sheep barn has been recently moved, remodeled and enlarged. It is of sufficient size to accommodate the flocks of pure bred sheep which are maintained for instructional and experimental purposes.

Hog Barn: This is a stone and frame barn built to accommodate breeding animals. It is equipped with concrete floors, iron pen divisions, dipping tanks, scales, and feed cookers.

Beef Cattle Sheds: The beef cattle are partly housed in a long feeding shed. The shed is divided into fifteen divisions with a lot in connection with each. This arrangement is to accommodate the cattle for feeding experiments.

Meat Cutting: A large room is set aside in Schweitzer Hall for instruction in farm butchering. Farm animals are slaughtered in the slaughter house and brought to this room where they are cut up. It is well equipped, affording ample facilities for instruction in home meat curing.

University Serum Farm: The hog-cholera serum plant is on a 90-acre farm about three miles north of the University farm on the Wabash Railroad. The plant has a capacity of 50,000,000 cubic centimeters of serum a year. When at full capacity 1,500 hyperimmune hogs will be kept, and with it in operation the College of Agriculture can meet any emergency. With this equipment the students in the College of Agriculture study the methods of controlling and eradicating hog cholera as well as the manufacture of serum.

Agricultural Library: Altogether there are about 17,000 books relating to all phases of farming available for study. In the agricultural library there may be found current files of all prominent American farm papers, experiment station bulletins, reports of the national

Department of Agriculture, and of various agricultural societies of Missouri and other states. The library is open to short course students at all times and affords a splendid opportunity for them to become familiar with the choicest farm literature. It is located in the Agriculture Building.

LIVE STOCK EQUIPMENT

Horses: The department of animal husbandry maintains a stud of thirty horses representing Percherons, American Saddle Horses, standard-bred horses, and Morgans. Sons and daughters of some of the most famous sires of America are included. In addition there are available for instructional purposes ten head of high class work



Draft horses used in the Short Course Stock Judging Contest. These animals were fitted by students of the College of Agriculture.

horses and mules—the property of other departments—besides several stables of sale, breeding, and show horses and mules in or near Columbia.

Swine: The swine herd includes breeding herds of Duroc Jerseys and Poland Chinas. About twenty-five mature sows are kept. These, with their offspring, make a herd of 150 to 200 hogs, which furnish material for instructional purposes in pork production and in swine judging. From 15 to 75 head of fat barrows are exhibited at live stock shows each year. The herd has produced grand champions at the International Live Stock Show, and these, together with their sires, dams, and pigs of similar breeding, are available for instructional purposes. Information concerning the methods of feeding them is also available.

Beef Cattle: The department of animal husbandry maintains a herd of about sixty-five head of pure-bred beef cattle, representing

the Shorthorn, Aberdeen-Angus, Hereford, and Galloway breeds. The breeding herd is maintained in a practical and productive manner which forms a basis for a study of the management of beef cattle and supplies specimens for judging work. A herd of show steers exhibited each year at some of the leading live stock shows in the United States is also available for judging practice. This herd includes champion and first prize individuals, together with some first prize groups. These cattle are available for instructional purposes, and the prizes which they have won furnish a measure of their efficiency.

Typical specimens of the various market classes and grades of cattle are obtained from a market center each winter for demonstration purposes. The Agricultural Experiment Station beef cattle, numbering from forty to eighty head, are also available for study.

Sheep: A breeding flock of about one hundred pure-bred sheep representing the Shropshire, Hampshire, Dorset Horn and South Down breeds is maintained for instructional work. A small grade flock is also kept to illustrate the market classes and grades of sheep and to emphasize the value of using pure-bred rams. The students are taught to shear the sheep, prepare them for shows, and to manage the flock from the farmer's standpoint.

DAIRY CATTLE

The Department of Dairy Husbandry has nearly one hundred pure-bred animals of the Jersey, Holstein and Ayresshire breeds. Twenty cows in the herd have produced more than 700 pounds of butter in a year. Five of these are above 800 pounds and two above 900 pounds. Practically the entire Jersey herd are daughters of one bull, Sultana's Virginia Lad. His entire list of daughters in this herd have official records averaging 523 pounds of butter as two-year olds which is an increase of 45 per cent in milk production and 60 per cent in fat production over their dams at the same age. Other give promise of great records as they develop and three have already come back with records above 700 pounds.

In the Holstein herd six cows have produced more than 20,000 pounds of milk in one year, their average records being 22,806 pounds. One has three yearly records averaging 21,661 pounds and a life record of 157,896 pounds of milk containing 4,929 pounds of fat equivalent to 6,121 pounds of butter.

The herd as now constituted represents a combination of the blood of Sir Pieterje Ormsby Mercedes, believed by many to be the world's greatest sire of yearly high producing cows, and Sir Korn-dyke Hengerveld De Kol, and the blood that produced Missouri Chief

Josephine, a cow which produced 26,861 pounds of milk in one year. The entire Holstein herd excepting two herd bulls, has been bred and developed on the University Farm.

A large number of Missouri graduates who worked with this herd during their College course are today playing a leading part in College and Experiment Station work, with the United States Department of Agriculture, in public and private enterprises and as breeders of dairy cattle. For the student who is interested in dairy husbandry, this herd offers an excellent opportunity to study a successful system of herd management. Missouri Dairy Cattle Judging Teams who have received their instruction with this herd have won six four-hundred dollar scholarships, ten silver cups, four gold medals and sweepstakes on two occasions in nation-wide Dairy Cattle Judging Contests for University Students.



Four Holstein cows bred and owned by the University of Missouri. Average 22,011 pounds of milk containing 662 pounds of fat, equivalent to 827 pounds of butter in one year. One has a life time record of 157,896 pounds of milk containing 4,929 pounds of fat, equivalent to 6,121 pounds of butter. Negative No. 1023.

LAND EQUIPMENT

Altogether, there are 700 acres in the University Farm. A large part of this is hilly bluegrass pasture. There is enough cultivated land to satisfy the requirements of instruction, and students are given an opportunity to study in the field the effects of proper and improper soil management and crop rotation as well as to observe all the facts of plant growth and plant development, which are necessary to a proper understanding of field crop rotation. The horticultural grounds are adequate to teach the principles of orchard and garden management in every detail.

In addition to this land a farm of 330 acres is rented by the Animal Husbandry Department.

University Fruit Farm: The University owns eighty acres of land near Turner Station, five miles south of Columbia. This farm lies on the fertile loess soil common along the Missouri River, said to be the best fruit soil known. More than thirty acres are now planted to the leading varieties of apples, peaches, pears, plums, cherries, and small fruits adapted to Missouri. Here students study the adaptation and characteristics of the different fruits and observe the effect of different cultural methods used.

THE COST OF THE COURSE

The cost of attending the Short Course has increased during the past few years. Most Short Course students room with private families. The usual price for double room is from \$14 to \$22 per month, or from \$7 to \$11 per man per month. The Y. M. C. A. maintains a dormitory for men in its building. Occasionally a few Short Course men stay in this building.

Many Short Course students eat at the Commons, which is more familiarly known as the Cafeteria. Board can be had there at a reasonable figure. Some Short Course students board at private boarding houses. The cost of board at these houses will range from \$5 to \$7.50 per week.

How to get a Room and Boarding Place:—Short Course students should plan to arrive in Columbia on Sunday afternoon, October 30, or early on Monday, October 31, 1921, when entering the first term; and Sunday afternoon, January 1, or early Monday, January 2, 1922, when entering the second term. Those who have not been in Columbia before and who are not familiar with the city should go at once to the Y. M. C. A. Building. Representatives of the Y. M. C. A. and former Short Course men will meet all incoming trains on the above days. They will escort students to the Y. M. C. A. Building, where they will be aided in locating rooming and boarding places.

Fees: There is no charge for tuition but students are required to pay a library, hospital and incidental fee of \$25 for two terms provided the student registers and pays the fee for both terms at the opening of the course in the fall. This fee (or part of it) is not returnable in case the student continues in school longer than 7 days. If a student so desires he may pay the fee for only one term in which case the fee will be \$15. This is not returnable after the student has been enrolled 7 days. The library, hospital and incidental fee entitles the student to free use of the library and to free medical attention and hospital care in case of sickness.

Students in the special course in Home Economics and in Dairy

Manufactures will be required to pay a library, hospital and incidental fee of \$15. Small laboratory fees are charged in courses where large amounts of materials are used.

WORKING ONE'S WAY THRU THE SHORT COURSE

Students are advised not to try to work their way thru the Short Course. The work is so arranged that every student needs all of his time for study and classroom work. One summer's work on the farm will enable a young man to save enough to pay his expenses in the Short Course the following winter. Men who desire to take the course, but who have not the means, are advised to work on a good farm for one year, then come to Columbia prepared to put in full time in study and classroom work.



Hereford heifers bred and owned by the University. These are all daughters of one sire.

Moreover, it is difficult for short course students to obtain employment, as most of the best positions are taken by regular students who are on the ground earlier and therefore have the first opportunity at all openings which have any promise of permanency or regularity of employment. The Y. M. C. A. conducts an employment bureau, and prospective short course men who must earn at least a part of their way are advised to apply early to this bureau, where some assistance may be given.

MEDICAL ATTENTION FOR STUDENTS

Regularly enrolled short course students have free medical attention and hospital care. In the dispensary at Parker Memorial Hospital students may consult with and have treatment by the members of the staff of the department of clinical medicine and surgery. The

attention of the same staff physicians is available to students who have to be admitted to the hospital. Hospital care is given without charge except for extraordinary medicines and for special nursing. No charge is made for surgical operations that are considered by the staff as imperatively necessary. Vaccination for smallpox is required of all students.

For additional information regarding the care of students' health at the University of Missouri consult the annual catalog. The catalog will be sent free upon application to the Registrar, University of Missouri, Columbia, Mo.

PROTECTING THE HEALTH OF THE STUDENTS

Students in the Two Year Winter Course in Agriculture are required to take systematic exercise under the direction of an instructor in the department of physical education at least twice a week. The Stock Judging Pavilion is used at certain hours for this purpose. Shower baths and suitable dressing rooms are provided.

This work is given as a means of safe-guarding the health of the students. Most of the short course students come to the University directly from the farm where they have been working out of doors. A too sudden change from the active outdoor life to the indoor life of the class room is sometimes harmful to the health. By taking a small amount of systematic exercise, students keep themselves in good physical condition and are enabled to do much better class work. Because of these facts, the University has made provision for the gymnasium work in the short course. The amount of time spent in taking this exercise is not enough to cause studies to be neglected.

Basketball, indoor baseball, and other indoor games are played. Turning bars and other gymnasium apparatus are provided. At the end of each term the short course students hold an athletic carnival.

CERTIFICATE OF GRADUATION

Every student who enters the Two Year Winter Course has as an ultimate goal the completion of the four terms. Upon completing the requirements the student is entitled to a certificate of graduation. In order that a student may receive a certificate of graduation from the Two Year Winter Course he must satisfactorily complete ninety-six units of work. Of this number sixty-five units are prescribed. (See courses of study, pp. 24 to 43.) The other subjects needed to complete the requirement are selected by the student from the optional courses named in connection with the course of study.

A unit is the equivalent of one classroom exercise a week thru-

out a term of eight weeks. Thus a class which meets three times a week gives a student three units' credit toward a certificate. A class exercise may be one or two hours in length, depending on the nature of the work.

The requirements for graduation cannot be met unless a student spends two full winters in the course. The four terms need not be taken in succession, but it is better to do so. Neither is it necessary that a student should begin work with the beginning of the fall term, but it will be somewhat to his advantage.

The value of the Two Year Winter Course will finally be measured in the main, not by the number of men who begin the course, but by the number who complete the entire course and receive certificates of graduation, for these are the men who receive the full benefit of the course.



A class of Shorthorn cows used in the annual Short Course Judging Contest. These cows are the foundation cows for the University herd.

RELIGIOUS LIFE

The Churches: Seventy-two per cent of the students at the University of Missouri are church members, and about 18 per cent have church preferences. The churches of Columbia extend a hearty welcome to short course students. Special Sunday school classes are arranged for them, and many of the students become active workers in the Sunday schools, Epworth League, Christian Endeavor, and various other young people's societies.

The Young Men's Christian Association: The regular Sunday morning meetings conducted especially for short course students are very popular, and they have proved so attractive that practically every active student takes advantage of the opportunity to attend. The association conducts Bible classes and other religious meet-

ings in addition to furnishing a list of available rooms and boarding places. The Y. M. C. A. Building is provided with club rooms, reading rooms, and a swimming pool. It has become a social center for short course students.

STUDENT ACTIVITIES

Stock Judging Contest

Each year Short Course students have a Live Stock Judging Contest. Prominent breeders in Missouri give gold medals as prizes to the winners in the various classes of live stock. The Fourteenth Annual Contest was held at Columbia in the Live Stock Judging Pavilion, February 19, 1921. A great deal of interest is manifested in this contest, as is shown by the fact that practically all the farm papers in Missouri and the Middle West printed interesting stories and used valuable illustrations of it.

Winners of Medals

Medals	Presented by	Won by
Rotermund Percheron Medal	Rotermund Bros., Lincoln, Mo.	A. W. Marsh.
Rinehart Mule Medal	W. A. Rinehart, Palmyra, Mo.	W. E. Blayney.
Richards Poland China Medal	J. F. Richards & Sons, Bevier, Mo.	Geo. C. Mermoud.
Schmid Shropshire Medal	R. Schmid, Queen City, Mo.	L. Rodhouse.
Good Donald Farm Hereford Medal	Good Donald Hereford Farm, Grandview, Mo.	J. E. Comfort.

The Missouri Short Course Students' Association Meeting During Farmers' Week

On January 17, 1921, the second annual meeting of the Missouri Short Course Students' Association was held. Addresses were made by Harry C. Hensley, county agent of New Madrid County and a former Short Course student, and by Dean F. B. Mumford. The following officers were elected to succeed those retiring:

Kenneth C. Anderson, Gideon, Mo.	President
Geore C. Mermoud, Monett, Mo.	Vice-President
Clay T. Davis, Braymer, Mo.	Secretary

The Short Course Club: This is the official short course organization, an organization that has the support of every student. This club is entirely under the control of short course students, who elect their own officers, make their own rules, appoint committees, and transact the business of the club. Meetings are held once every week. The programs consist of music, debates, readings, talks by members of the faculty and others. Lunches are sometimes served at these meetings.



Short Course Stock Judging Contest Winners, February 19, 1921. Top row: Rodhouse, Blayney, Mermoud. Bottom row: Marsh, Comfort.

Short course students have been invited to attend the Agricultural Club, which is the official organization of the long course students of the College of Agriculture.

Short Course Banquet: At the close of the second term of the Short Course the annual banquet is held. This event has come to be regarded as the climax of short course activities for the year, and is attended by the short course students, faculty members, and others. Talks are made by faculty members, short course, and long course students. Students look forward to it with much interest, because it marks the culmination of the work for the year. Printed programs

are distributed to all present, upon which appears the names and home addresses of the students enrolled in the course.

Farmers' Week: Short Course students take an active part in welcoming and guiding visitors over Columbia during Farmers' Week. They also, along with the students in the Long Course, put on the banquet at the close of Farmers' Week. This is quite an affair as anyone who has ever attended can testify and is made possible only by the interest and cooperation of the students in the College of Agriculture.

Athletics: Realizing that exercise is essential to the health of students, plans have been perfected for the development of physical training as a part of the Short Course. Each year basketball teams are organized and games are played. The coming year will mark a



A class of Hampshires ewes used in stock judging work. Twenty ewes all the descendants of one ewe, make up the University flock of Hampshires.

new epoch in this field. We hope to have basketball teams, indoor baseball teams, instruction in track, baseball, football, boxing, wrestling, etc. Very few short course men realize the importance of proper exercise while they are students.

TRIP TO THE INTERNATIONAL LIVESTOCK SHOW

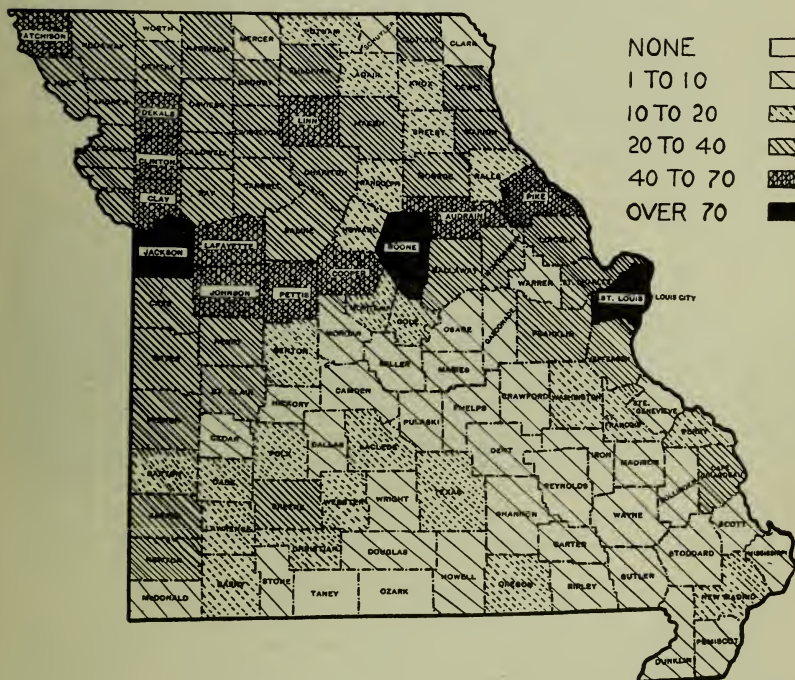
Each year many students avail themselves of the opportunity to attend the International Livestock Exposition at Chicago, accompanied by a member of the Animal Husbandry Department. This trip gives the student a new insight into the livestock business and permits them to see as nearly perfect types of farm animals as possible. It also affords an opportunity to see new country, new conditions, and

to see the Union Stock Yards, and the packing houses. This is a trip that few can afford to miss.

WHERE SHORT COURSE STUDENTS CAME FROM

The following chart shows the approximate number of men from each county in Missouri.

SHORT COURSE STUDENTS 1898 TO 1921



In addition to these the following number of men came from the states and countries indicated:

Alabama	1	Georgia	2	Louisiana	1
Arizona	2	Idaho	3	Maryland	1
Arkansas	23	Illinois	81	Michigan	1
California	2	Iowa	21	Minnesota	3
Colorado	3	Kansas	22	Montana	5
Florida	2	Kentucky	4	Mississippi	3

Nebraska	3	Pennsylvania	1	Denmark	1
New Jersey	1	South Carolina	1	Argentine Republic	2
New Mexico	1	Texas	12	Samoa Islands	1
New York	4	Washington, D. C.	2	Tennessee	1
Oklahoma	7	West Virginia	1	Brazil	1
Ohio	2	Wyoming	5	Canada	1

HOW TO ENTER THE SHORT COURSE

You will be surprised to find how simple and easy it is.

1. If expecting to enter the first term, arrive in Columbia not later than Monday, October 31, 1921. For the second term, arrive in Columbia not later than Monday, January 2, 1922. Classes will begin on Tuesday, November 1 at 8 o'clock, and on Tuesday, January 3 at the same hour. Those entering late will miss part of the instruction.

2. Upon arriving in Columbia, unless acquainted with the city, go at once to the Y. M. C. A. Building. Trains will be met by representatives of the Y. M. C. A. and old Short Course students on October 31, 1921, and on December 31, 1921, and January 1, 1922. Get a room and boarding place as directed on page 16.

3. After getting a room, report for registration at the office of the Superintendent of Short Courses in the Agriculture Building. Registration will begin at 9 o'clock on Monday, October 31, 1921, and on Monday, January 2, 1922.

4. No student should register until he has carefully studied the list of courses for the various terms on pages 26 to 28. He should also read the description of each course required for each term and the various optional courses that he may desire to take.

THE COURSE OF STUDY

In each term the student is required to take certain subjects. In addition to those required, he is permitted to choose one or more of the optional subjects open to him during that term. The required and optional subjects for each term are listed on the following pages. In each term the required subjects cover fairly generally the branches of agriculture practiced on Missouri farms. The student may then choose from the optional subjects those relating to the phases of farming in which he is most interested. A student does not have a full course unless he takes all the required subjects and the full number of optional subjects indicated for each term.

Attention is directed to the fact that one may study along five special lines of farming by proper selection of the optional subjects

during the four terms of the Two Year Winter Course. He may train himself for the pure bred live stock business, the pure seed growing business, fruit growing, poultry raising or dairying. The teachers who assist in registration are prepared to advise students in the selection of optional courses.

If a student enters the University October 31, 1921, for the first time, he will take the courses under *First Year, First Term*. If he returns January 2, 1922, he will take the courses under *First Year, Second Term*. If a student cannot enter at the opening of the course on October 31, 1921, he can enter without much inconvenience for the first time, January 2, 1922. If he enters then he will take the courses listed under *First Year, Second Term*, arranged especially for those who enter then for the first time and outlined on page 26. This is the same course taken by those who entered for the first time at the beginning of the first



Mules used in the Short Course Stock Judging Contest. Students have the opportunity of studying and judging practically every specie and breed of livestock grown on Missouri farms.

term except that a course in stock judging adapted to the beginner is given, and the poultry course required of all students in the first term is included.

If he returns for the first term of 1922, he will then take the *First Year, First Term* courses. Those who have completed both terms of the first year will enter the *Second Year, First Term*.

All the work is thoroly practical. Much of the instruction is given by having students actually do the work under proper direction. The course is being definitely connected up with the Agricultural Extension Service of the University. It is planned to have the student continue his study of agricultural problems on his home farm when he leaves the short course. He will do this as a cooperator or demonstrator for the Agricultural Extension Service, working under the direction of some of the extension workers.

FIRST YEAR, FIRST TERM

October 31, 1921, to December 21, 1921

Required	Periods a week
Cereal Crops and Grain Judging	5
{ *Farm Dairying, or	3
{ Farm Horticulture	3
Judging Market Grades and Classes of Live Stock	3
Feeds and Feeding	5
Farm Poultry Management	3
Physical Training	2

Elective

Farm Construction Methods	4
Farm Beekeeping	3
Fruit Packing	3
Woodworking	3
Forging	3
Farm Dairying Laboratory	2

*It is desirable that students taking Farm Dairying should elect Farm Dairying Laboratory.

FIRST YEAR, SECOND TERM

January 2, 1922, to February 24, 1922.

Required	Periods a week
Prevention and Treatment of Animal Disease	4
{ *Farm Dairying, or	3
{ Farm Horticulture	3
Judging Types and Breeds of Farm Animals	3
Soil Tillage	3
Forage Crops	4
Physical Training	2

Elective

Pork Production	3
Beef Production	3
Vegetable Gardening	3
Poultry Judging	3
Advanced Forging	3
Dairy Cattle Judging	2
Farm Machinery	4
Farm Dairying Lab.	2

*It is desirable that students taking Farm Dairying should elect Farm Dairying Laboratory.

SECOND YEAR, FIRST TERM
October 31, 1921, to December 21, 1921

Required	Periods a week
Injurious and Beneficial Insects -----	3
Infectious Diseases and Farm Sanitation -----	3
Farm Accounts -----	3
Soil Fertility, Manures and Fertilizers -----	3
Rural Economics -----	3
Physical Training -----	2
Elective	
Field Crops Management -----	3
Advanced Farm Machinery, Gas Engines and Tractors -----	4
Farm Construction Methods -----	4
Breeds of Livestock -----	3
Horse Production -----	3
Sheep Production -----	3
Farm Poultry Practice -----	3
Fruit Packing -----	3
Woodworking -----	3
Forging -----	3

SECOND YEAR, SECOND TERM
January 2, 1922, to February 24, 1922

Required	Periods a week
Animal Breeding -----	3
Farm Marketing -----	3
Physical Training -----	2
Elective	
Farm Butchering, Cutting and Curing of Meats -----	3
Advanced Live Stock Judging -----	3
Advanced Grain Judging -----	3
Soil Management -----	3
Farm Sanitary Equipment -----	2
Cooperative Banking -----	3
Spraying -----	3
Vegetable Gardening -----	3
Incubation and Brooding Practice -----	3
Advanced Forging -----	3
General Farm Management -----	3
Milk Production -----	3
Rural Social Problems -----	2

FIRST YEAR, SECOND TERM
January 2, 1922, to February 24, 1922

For those who enter for the first time at the beginning of the second term.

Required	Periods a week
Prevention and Treatment of Animal Diseases	4
{ *Farm Dairying, or	3
{ Farm Horticulture	3
Judging Market Grades and Classes of Live Stock	3
Soil Tillage	3
Forage Crops	4
Farm Poultry Management	3
Physical Training	2
Elective	
Woodworking	3
Forging	3
Dairy Cattle Judging	2
Farm Machinery & Engines	4
Farm Dairying Laboratory	2

*It is desirable that students taking Farm Dairying should elect Farm Dairying Laboratory.

STATEMENT OF COURSES

Courses of the Two Year Winter Course are marked with a "t" to distinguish them from those of the long course. Courses preceded by a number with the letters "tf" attached, as "1tf," are given during the first term. The letter "w," as in "1tw," indicates the course is given during the second term.

ANIMAL HUSBANDRY

MR. TROWBRIDGE; MR. WEAVER; MR. MUMFORD; MR. HOGAN; MR. CHITTENDEN; MR. EDINGER; MR. FOX

1tf. **Judging Market Classes and Grades of Live Stock.** Required in the first term of the first year. The fundamentals of live stock judging. A study of animal form and character, the names and location of parts, indications of feeding quality, constitutional vigor and capacity for production of meat, milk, wool, speed, and work with special reference to the market requirements. Both score card work and comparative judging are included. The work includes a study of horses, mules, cattle, sheep, and hogs. Three judging periods a week.

1tw. **Judging Market Classes and Grades of Live Stock.** This is a repetition of course 1tf given in the second term for new students and is required.

2tf. **Breeds of Live Stock.** Optional in the second year, first term. The history, adaptability, feeding qualities, and general utility of the leading breeds of live stock produced in this country. Three lectures a week.

3tf. **Feeds and Feeding.** The fundamental principles of feeding live stock. Feeding standards are carefully studied to teach the food requirements of different classes of farm animals. A study is made of the composition, digestibility, and relative feeding value of the various hays, grains, mill feeds, and miscellaneous feeding stuffs and students learn how to calculate rations for live stock fed on the farm. The preservation and preparation of coarse fodders and grains



Poland Chinas used by Short Course students
in stock judging.

by grinding, steaming, and cooking, etc., is also taken up. The class is divided into four sections for this course. Required in the first term of the first year. Five periods a week.

4tw. **Animal Breeding.** Required in the second term of the second year. A course in the principles of animal breeding. The course will include a brief survey of the physiology of reproduction and the applications of biology to the practice of animal breeding. Three periods a week.

5tw. **Farm Butchering, Meat Cutting, and Curing.** Optional in the second term of the second year. This course of instruction is offered to encourage the home curing of meats. Actual practice in slaughtering beeves, hogs, and sheep under farm conditions is given. This is followed by instruction and practice in cutting up the carcasses, trimming the cuts, and curing the meat. A detailed study is made of the various cuts of a carcass and the relative values of each.

The course takes up in some detail the economical disposition of the various cheaper cuts. Three laboratory periods a week.

6tw. Judging Types and Breeds of Farm Animals. Open only to first year students who have had course 1tf. Required in the second term of the first year. A study of the breeds of live stock with special attention to breed type and character, and to their relative values for the production of meat, milk, wool, speed, and work. This course includes a study of show ring classifications and a detailed consideration of differences between market and breed types. Three judging periods a week.

6tf. Judging Types and Breeds of Farm Animals. A repetition of course 6tw for students who have entered the second term in the first year and who have had course 1tw. Required in the first term of the first year of the students indicated above. Three judging periods a week.

7tw. Advanced Live Stock Judging. For second-year students only. Optional in the second term of the second year. This course is a continuation of courses 6tf and 6tw. A study of the various classes of farm animals with particular reference to the breed characteristics and differences. The practical methods of show yard judging; relation of pure bred stock to market classes. The major portion of the work will be comparative judging supplemented with reference reading and illustrated lectures. Optional in the second term of the second year and open only to those who have had courses 1tf and tw.

No student will be permitted to enter the following courses until he has taken course 3tf, Feeds and Feeding.

8tw. Beef Production. Optional in the second term of the first year. A discussion of practical methods of beef production; the successful practices in feeding for market, feeding for show, and the general care and management of beef cattle. Three lectures a week.

9tw. Pork Production. Optional in the second term of the first year. Approved systems of swine management. A discussion of foodstuffs, with special reference to their adaptability to pork production, the feeding of hogs for market and the feeding and marketing of the commercial and pure bred breeding herd is emphasized. Three lectures a week.

10tf. Sheep Production. Optional in the first term of the second year. A study of the various systems of sheep management. The raising of sheep both for mutton and wool. The production of spring lambs; fattening sheep and lambs; and general care and management of the breeding flock.

11tf. Horse Production. Optional in the first term of the second

year. A discussion of practical methods of horse production including breeding, growing and marketing horses of all classes. This course includes some practical laboratory exercises.

AGRICULTURAL ENGINEERING

MR. WOOLEY; MR. JONES

1tf. **Farm Construction Methods.** Optional first term of first or second year. 2 lectures, 2 laboratory periods, 4 units' credit.



Students learn the care and operation of the various types of tractors by actual practice.

Simple tests for sand and gravel. Practice in concrete work. Practice in framing, rafter cutting, etc.

2tw. **Farm Machinery and Engines.** Optional second term of first year. 2 lectures, 2 laboratory periods, 4 units' credit. Study of the principles of the construction of farm machines, their operation, care, adjustment, and use. Elementary gas engines and their principles of construction.

3tf. **Advanced Farm Motors.** Prerequisite course 2 tw. Optional first term of second year. 2 lectures, 2 laboratory periods, 4 units' credit. Study of stationary gas and oil engines and tractors, their care, operation and adjustment.

4tw. **Farmstead Equipment.** Optional second term of first or second year. 2 lectures, 2 units' credit. Study of heating, lighting, water and sewage disposal systems for farm buildings.

5tw. **Dairy Mechanics.** Optional second term of first or second year. 2 lectures, 2 laboratory periods. Study of steam boilers, engines, and refrigerating machinery. Practice in belt lacing, pipe fitting, babbiting, and soldering.

DAIRY HUSBANDRY

MR. RAGSDALE; MR. SWETT; MR. REID

1tf and w. **Farm Dairying.** Three lectures and two laboratory periods a week, lecture work required during first year, laboratory work is elective. This course gives the student such instruction regarding dairy work as will be of value to anyone engaged in farming whether or not he is especially interested in the production of dairy products for market. The nature, composition, properties of milk, and its use as food are studied. The separation of cream and butter making under farm conditions are given some attention. The testing of cream and milk for butter fat, how to test individual cows, and how to handle milk and cream properly, are given particular attention. Open to students in the Short Course in Home Economics. Students taking the laboratory work in this course must provide themselves with white overalls and jumper to protect their clothing.

2tw. **Milk Production.** Elective in the second term of the second year. Practical instruction regarding the dairy cow on the farm, including adaptation of breeds for various purposes, the selection of individual cows by type and by records, and keeping milk and butter fat records. Selecting the bull, raising calves, feeding cows, general care and management of the herd are given special emphasis. The large herd of dairy cattle belonging to the University and other nearby dairy herds are used in demonstrating and illustrating this course. Three lectures a week.

3tw. **Dairy Cattle Judging.** The points in the form and appearance of the dairy cow that have a bearing upon her ability to produce milk are studied. The high producing cows in the University of Missouri dairy herd and those of several high class herds near Columbia are available for use. Elective in the second term of either the first or second year. Two judging periods a week.

4tw. **Market Milk.** This course is designed for all those who handle milk or cream in any way. Special attention is given to the problems of the market milk producer and distributor, including the relation of dairy products to human health. A study is made of classes of market milk, transportation, handling, delivery, and marketing. Sanitary inspection and equipment of farm and city plants, business methods and problems of public control are studies. Two lectures and one laboratory period a week. Elective in the second term of the second year.



Students at work in dairy laboratory. Up-to-date methods of butter making, cream and milk testing and modern dairy practice are taught.

ENTOMOLOGY

MR. HASEMAN; MR. SULLIVAN; MR. MCBRIDE

1tf. **Injurious and Beneficial Insects.** Required in the first term of the second year. This course trains the student to recognize the various injurious and beneficial insects and how to prevent the im-

mense damage done by insect pests. Special attention is given the chinch bug, Hessian fly, army worm, codling moths, and San Jose scale. A general discussion of the life history, transformation, appearance, nature of injury produced, and best methods of control of the principal pests injuring farm crops. Actual specimens of the pests are studied so that the student can easily recognize them. Three lectures a week.

2tf. **Farm Beekeeping.** Optional during the first term of the first year. Two lectures and one period of laboratory or field work a week. It is intended to train the students to handle and care for a few stands of bees on the farm. Along with the practical work a complete discussion of the more technical phases of beekeeping will be given, and the students will be required to secure a text book on beekeeping for use as a reference text. An apiary is maintained for use in connection with the course.



A pen of white leghorns. Several hundred fowls representing the popular varieties are kept by the College for instructional and experimental purposes.

FIELD CROPS

MR. ETHERIDGE; MR. HELM; MR. STADLER; MR. LETSON; MR. POLLOCK

1tf. **Grain Crops.** Required in the first term of the first year. A general course in improved methods of producing corn and other grain crops. Special attention is given to cultural methods and to the improvement of the varieties. Four lectures and one laboratory period a week.

2tw. **Forage Crops.** Required in the second term of the first year. A general course in improved methods of producing the important hay and forage crops of Missouri. Special attention is given to the utilization of these crops in cropping systems adapted to Missouri farms. Three lectures and one laboratory period a week.

3tf. **Field Crops Management.** Optional in the first term of the second year. A study of crops rotations for Missouri conditions;

discussions of the relation of the rotation to the maintenance of soil fertility; the management of crops in various systems of farming. Three lectures a week.

4tw. **Grain and Seed Judging.** Optional in the second term of the second year. A laboratory course in grain grading by the Federal standards; discussions of grain inspection and marketing; special studies of the quality of farm seeds; practice in the identification of important varieties of corn and other grains. Three laboratory periods a week.



Grain Judging. The selection of pure seed of the right variety is one of the profitable methods of increasing production.

HORTICULTURE

MR. GARDNER; MR. BRADFORD; MR. ROSA; MR. SWARTWOUT

1tf and tw. **Farm Horticulture.** Required in the first year. This course is designed to meet the needs of the general farmer rather than of the commercial fruit grower. It takes under consideration the farm vegetable garden, such fruits as may be grown to advantage on the average farm and methods of rendering the home grounds more attractive. Three lectures a week.

2tf. **Commercial Fruit Growing.** The establishment and maintenance of commercial fruit plantings. Selection of varieties and sites, planting, tillage questions, spraying and graftage are among the topics considered. Two lectures and one laboratory period per week. Optional, first term of either year.

4tw. **Commercial Fruit Growing.** Essentially a continuation of course 2, but the subject matter is so arranged that it may be taken by students who have not had that course. A large portion of the



Class in spraying. Wherever possible, actual practice is given students so they may have the benefit of experience.

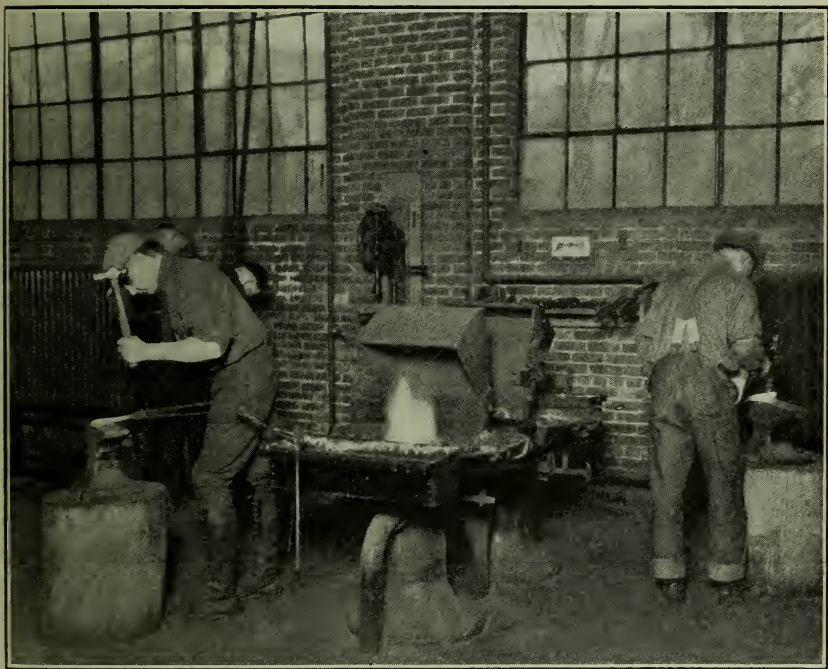
course is devoted to practical work in pruning. One lecture and two laboratory periods per week. Optional, second term of either year. Enrollment limited.

5tw. **Vegetable Gardening.** This course includes instruction in the efficient management of an all-summer local market garden. It includes the construction and management of hot-beds and cold-frames, the use of manure for the garden, and the farm storage of

vegetables for winter use. Open to students in the Short Courses in Agriculture and Home Economics.

6tf. **Fruit Handling.** A consideration of picking, packing, storing and marketing the fruit crop. Much of the time is spent in grading and packing apples. Two laboratory periods per week. Optional, first term of either year. Enrollment limited.

7tw. **Insect and Disease Control.** The nature and control of insect and fungous fruit pests. Three laboratory periods per week. Optional, second term of second year. Enrollment limited.



Shop Work. The elements of blacksmithing and woodworking are taught. Students are enabled by these courses to hold down repair bills.

INDUSTRIAL ARTS

MR. SELVIDGE; MR. ALTON; MR. MURRY

1tf and 1tw. **Woodwork.** Optional in both terms either year. Students are taught the use and care of woodworking tools in the making of useful things. This is a course for beginners. Three laboratory periods a week.

2tf and 2tw. **Forging.** Optional in both terms either year. This course includes instruction and practice in welding, bending, forming and drawing iron, and tempering steel. A course for beginners. After successfully completing this course students should be able to do simple repair work with a portable forge such as can be used on the average farm. Three laboratory periods a week.

6tw. **Advanced Forging.** Optional in the second term. Practical work in plow sharpening and tire setting. Demonstration and instruction in horse shoeing. Class limited to twenty students and open only to those who have had course 2tf and 2tw. Three laboratory periods a week.

7tw. **Advanced Woodworking.** Optional in the second term. Open only to those who have had course 1tf or 1tw. Class limited to twenty students. Takes up the more advanced phases of woodworking.

Each student who enrolls in any of the above courses must be equipped with a suit of overalls to wear in class.

PHYSICAL TRAINING

MR. CLEVENGER; MR. MILLER

1tf and w. **Physical Training.** The gymnasium work is required. Work consists of basketball, indoor baseball, football, and volley ball. Competitive teams are organized from among the classes. Exercises are also taken with various forms of gymnasium apparatus.

POULTRY HUSBANDRY

MR. KEMPSTER; MR. HENDERSON

1tf. **Farm Poultry Management.** This course teaches how to make more money out of the poultry on the farm, how to hatch and raise poultry, feed for egg production, and handle the stock for market. Instruction is given in the most economical ways of killing and dressing for the market. The housing of chickens on the farm and methods of treating the common diseases are also discussed. Three lectures a week.

1tw. **Farm Poultry Management.** A repetition of course 1tf for those who enter for the first time at the beginning of the second term.

Course 1tf or 1tw is required before any of the courses described below can be taken.

2tf. **Farm Poultry Practice.** Optional in first term. For those

students who are particularly interested in farm poultry raising this course is offered. It goes more into the detail of the operations around poultry, such as killing, dressing, sanitation, planning and mixing rations, culling and judging for egg production, etc. The student is taught the every day practices of a person engaged in handling poultry. One lecture and two laboratory periods a week.

3tw. **Poultry Judging.** Open only to those who have had course



Class in stock judging. Students are taught different methods of handling livestock, the different points to consider in judging and the proper value of each.

1tf or 1tw. How to judge poultry, the formation and breed characteristics of chickens from the standpoint of the poultry show and the production pen are taught. Considerable attention is given to the principles of poultry breeding. Optional in the second term of the first year. One lecture and two laboratory periods a week.

4tw. **Incubating and Brooding Practice.** Optional in the second term of the second year. A practice course in the hatching and raising of chickens; a critical study of incubators and brooders is

made. Class is limited to twelve students. One lecture and two laboratory periods a week.

RURAL LIFE

MR. JOHNSON; MR. GROMER; MR. FRAME

1tf. **Principles of Rural Economics.** Required in the first term of the second year. Our governmental and commercial policies are framed to a great extent in the interest of the industries of the town and city. The problem of living in the country has been too much neglected. It is the purpose of this course to direct attention to some of the most important features of these problems, and how they may be partly corrected. Some of the principles of economics in their application to agriculture are discussed. Three lectures a week.

2tf. **Farm Accounts.** Required in the first term of the second year. It is arranged to make, first of all, a thoro study of taking inventories and keeping financial records. More time is devoted to this than to any other phase of accounting because it is more important. Labor, feeding, and dairy records are also studied. Monthly statements and annual summaries of a farm business are made. Three lectures a week. Each student is required to purchase a farm record ledger and an inventory blank.

3tw. **General Farm Management.** Elective in the second term of the second year. How to make a practical working plan of the home farm is the object of this course. Each student makes a map of his home farm, and with this as a basis replans the practical farm operations. He considers the profitable outcome and the maintenance or increase of soil fertility as the main object. A crop rotation, the best methods for handling the crops used in this rotation, and the profitable utilization of these crops by stock will be planned. The amount of stock that can be kept under the plan will be worked out in detail. Three lectures a week.

4tw. **Co-operative Banking.** Optional in the second term of the second year. Must be preceded by course 1tf, principles of rural economics. The farmers in Missouri, being for the most part unorganized, and the price of what they purchase not standardized, in general they are able to command only such advantageous prices as their knowledge and influence enable them to secure. Partly because of these conditions, it is generally understood that they make only about half the rate of interest on their investments that they have to pay when borrowing capital. It is the intention of this course to explain how this condition of affairs may be at least partly remedied

and in addition to treat of some of the most fundamental principles of banking. Two lectures a week.

5tw. **Rural Social Problems.** A study of the human factor on the farm as it expresses itself in the rural home, the rural school, the rural church and other social institutions. Some ten or fifteen specific rural social problems will be taken up and studied as things which interest people who expect to live on the farm. Some of these problems are: life and labor on the farm, the social effects of differ-



Construction Work. Students are taught the proper methods and given practice in concrete work, building, framing, and rafter cutting.

ent types of land tenure, rural health and sanitation, rural recreation, rural education, transportation and communication, the rural village, the drift to the city. Each student will be given an opportunity to investigate some specific problem, if he so desires.

6tw. **General Farm Marketing.** A study of the development of farmers' cooperative marketing organizations, with a consideration of the importance of uniformity, standardization, grading, advertising,

etc., and the relation between general market conditions and farm prices. 3 periods a week. Mr. Johnson.

SOILS

MR. MILLER; MR. DULEY

1tw. **Soil Tillage.** Required in the second term of the first year. In this course the student learns the best methods of tilling and cultivating the soil. The laws of physics that affect the handling of soils are studied and illustrated by laboratory and field practice. The methods of controlling the moisture in the soil are given special emphasis. How to prepare the seed bed, eradicate weeds, and maintain good tilth are other features of the work. Two lectures and one demonstration period a week.

2tf. **Soil Fertility, Manures, and Fertilizers.** Required in the first term of the second year. A discussion of soil fertility and the methods of maintaining the productivity of soils. The relation of various crops to soil exhaustion and to soil improvement is considered; the methods of handling manures and fertilizers are given particular attention. Designed to bring out the principles of soil handling and fertilizing in order to maintain the highest state of productiveness. The results of experiments on various fields being conducted by the Missouri Agricultural Experiment Station at Columbia and in different parts of Missouri are of great service in indicating the proper treatment for the different soil types of the state. Practice in mixing fertilizers and in making simple tests of soils is a feature of this course. Two lectures and one demonstration period a week.

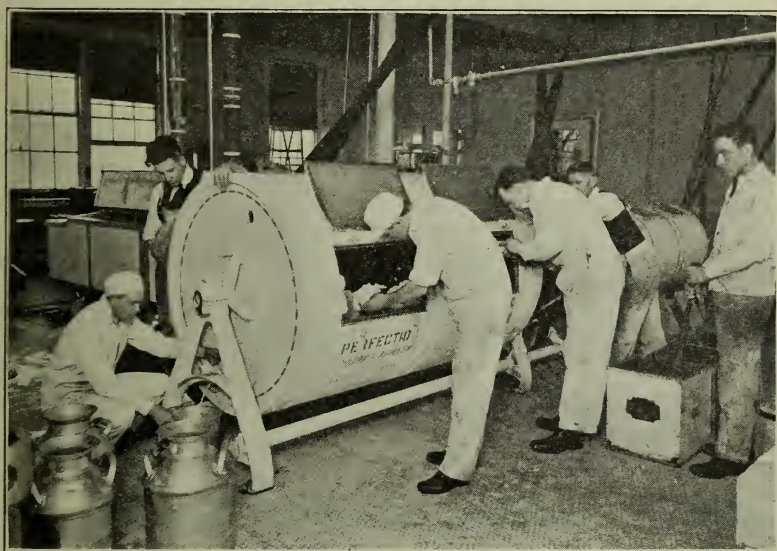
3tw. **Soil Management.** Optional in the second term of the second year. After having been thoroly drilled in the principles laid down in the courses on soil tillage and fertility, if he desires, the student can take this course. It is primarily devoted to the practical application of the principles studied in the courses mentioned above. The work includes a detailed discussion of the handling of lands from the standpoint of seed bed preparation, and tillage, more particularly the use of lime, fertilizer, and manure, as related to the various systems of soil management practiced in Missouri. Three lectures a week.

VETERINARY SCIENCE

MR. CONNAWAY; MR. BACKUS; MR. CRISLER; MR. DURANT; MR. NEWMAN

1tw. **Prevention and Treatment of Animal Diseases.** Required in the second term of the first year. Designed to meet the needs of

the average stockman in preventing disease and rendering first aid to animals in accident and disease. Lectures are given on common causes of diseases, action and use of disinfectants, care of sick animals, treatment of wounds, colics, dehorning, castration, and other objects of similar interest and importance. Laboratory exercises take up a study of the structure and function of the various organs, the control of animals, casting and various methods of restraint, application of bandages, how to administer medicines, disease producing bacteria, how to make a post mortem examination, how to vaccinate against blackleg, examination for soundness, etc. As far as



Students operating large churn in the the creamery. The best equipment possible is used and the opportunity of learning the operation of a large creamery is offered.

possible the student is given opportunity to do the work given in the laboratory. Whenever possible clinical cases will be used for demonstration. Three lectures and one laboratory each week.

2tf. **Infectious Diseases and Farm Sanitation.** Required in the first term of the second year. The following subjects are considered: (lump jaw), anthrax, rabies, roup of chickens. The student is taught how to make post mortem examinations and how infectious diseases are spread and how controlled. Two lectures and one laboratory period a week, supplemented by preserved specimens, lantern slides, and demonstrations.

SHORT COURSE IN HOME ECONOMICS FOR WOMEN

TRAINING FOR HOME SERVICE

The home is the most important factor in farm life. The problem of how to keep the boy on the farm is exceeded in importance only by one other and that is: how to keep the girl in the home. Thinking men everywhere have agreed that the solution of the problem so far as the boy is concerned lies in training him to be a skillful farmer and in showing him that there is more to farming than mere manual labor.

Surely the girl should be given an equal opportunity to learn of the new ideas in the management of home affairs. The waste of material things in the home, and still more important, the waste of time, strength, and energy, is generally the result of not knowing how to make the best of the resources at hand.

PLAN OF THE COURSE

The Short Course for women lasts eight weeks. It begins October 31, 1921, and ends December 21, 1921. Work is given in those subjects in which a woman as a home maker should be familiar. Economy in the management of household affairs is the key note of the whole course. The student learns how to save materials, time, and labor. By means of lectures she is taught why certain things and certain methods are better than others. Then, by actually doing the work in the various laboratories, she applies the knowledge gained in the lecture room to practical cooking, serving, sewing, millinery, buttermaking, etc. It is a practical course which trains the hand as well as the intellect. It offers the kind of knowledge which a woman can apply in her everyday housework and her everyday relations to the farm.

Students are given an opportunity to choose the special studies in which they are most interested. The department of home economics offers studies arranged especially for the Short Course for Women. Students may select one or any number of these subjects. In addition all the studies in the Two Year Winter Course in Agriculture are open to women students. The courses in farm buttermaking, poultry raising, fruit growing, and home gardening are especially recommended. It is expected that women students will choose part of their studies in home economics and part in agriculture.

WHO MAY ATTEND

Any woman more than sixteen years old may attend. Older women who have had the care and responsibility of managing a house will find much that will interest them, and on account of their experience will be able to derive even greater benefit from the course than girls who are less experienced. It is desirable that all students should have at least a common school education, but an earnest and sincere purpose is considered above other prerequisites. There are no entrance examinations.

FEEES AND EXPENSES

There is no charge for tuition, but each student pays an incidental fee of \$15.00 for the term of eight weeks. The following laboratory fees are required: Preparation of food \$2.50; planning and preparation of meals \$2.50; sewing \$1.00; millinery \$1.00; trade dressmaking \$1.00; and dressmaking \$1.00.

Rooms for women may be had in Columbia at prices ranging from \$14.00 to \$22.00 a month. Where two persons occupy the same room, each pays one-half of the above sum. The price depends upon the size of the room and its conveniences. Board may be had at prices varying from \$5.00 to \$7.50 a week. Many women students of the University board at the Cafeteria where board may be had at a reasonable figure.

WHAT TO BRING

The landladies furnish bed linen and covers, but each student is expected to bring towels. An extra blanket will usually be acceptable. At least two plain white aprons will be needed. These should be plainly made, buttoning rather than tying at the belt. All the equipment for the sewing and millinery classes will be furnished by the University. The material for the suit of underwear and simple dress which will be made in the sewing class may be brought along or purchased here. A long-sleeved gingham apron should be brought.

All students who expect to enter the Short Course for Women should write to the Department of Home Economics, University of Missouri, Columbia, Missouri, several days in advance, stating just when they will arrive. Those who make these arrangements will be met by members of the Home Economics Club or of the Y. W. C. A. In case no such arrangements have been made previous to arriving in Columbia, new students should go direct to the Home Economics Department.

Students should plan to reach Columbia on Monday, October 31, 1921. Classes will begin promptly on Tuesday, November 1, 1921. The offices of the University are not open on Sunday. Students who come in on that day will have some difficulty in finding desirable and convenient rooming and boarding places. Each student in the Short Course may ask aid of the Home Economics Club or Y. W. C. A. in the selection of her rooming and boarding place if she desires. Every effort should be made to reach here early enough on Monday to complete the registration and get permanently located in order to attend classes on Tuesday morning.

DESCRIPTION OF COURSES

1tf. **Food Preparation.** This course teaches home cooking in a very practical form. The composition of the different foods is studied and recipes for cooking worked out. The aim of this course is to teach the student to select food intelligently, cook it palatably and serve it attractively. Emphasis is placed on simple home cookery and the course is planned so as to make the students independent of recipes, or to attempt, insofar as it is possible in so short a course, to give them what the practical home cook gains only thru years of experience.

2tf. **Meal Planning.** The problem which faces the housewife three times a day is that of planning, preparing and serving three meals. "What shall we have?" is a baffling question many times and one which cannot be side-stepped. The family must be fed. The aim of this course is to help the girls plan meals more easily which will satisfy the desires and needs of the family group, which will keep them well and strong, and at the same time will take into consideration the foods which can be provided economically, and prepared most easily.

3tf. **Sewing.** Some students come to us who have never learned to sew. These girls need elementary instruction in sewing. In this course a suit of underwear and a simple dress are planned and made. This course is intended only for those who have sewed very little.

4tf. **The Dress Problem.** An important problem to most young women is the selection of their clothing. It is important economically that they get the best values for their money and it is important that they appear at their best. They should know how to select materials, design or select the designs for their dresses and to make them. The care and mending of clothing is important if the greatest service is to be secured.

5tf. **Home Care of the Sick.** An important duty of the woman in the home is to take care of the health of the family. This may

be divided into two phases—keeping them well and take care of them when ill. Both are important and are discussed in this course.

6tf. **Household Management.** Outside help in the home is coming to be a thing of the past. The high cost of living means that home purchases must be made with care. The responsibility for the work of the home and the expenditure of money lie with the home manager. In order to make this course really practical, a practice house has been planned in which the students live and keep house. This furnishes a definite basis for estimating the cost of living, making and testing budgets, plans of work and time scheduled. Modern labor-saving devices will be discussed and tested in this course.

7tf. **Millinery.** Some students come to us each year who are interested in the millinery problems. This course teaches how to select, make over, and construct simple hats.

8tf. **Trade Dressmaking.** There has been an increased demand for systematic instruction to enable the girl to earn her living at home by dressmaking. This course has been planned with this idea in view. It is recommended that students taking this course spend all their time on it.

As soon as a student becomes sufficiently proficient she will be given order work which should enable her to pay part of her expenses. These students will meet daily from eight to four.

Course in Agriculture

The following courses in the Agricultural Short Course will be of special interest to women. Description of these courses will be found in the Short Course Announcement on the page indicated.

1tf. **Farm Poultry Management.** Page 38.

1tf. **Farm Dairying.** Page 32.

5tf. **Vegetable Gardening.** Page 36.

CREAMERY SHORT COURSE

OFFERS EIGHT WEEKS INTENSIVE TRAINING

There is an ever increasing demand for trained men to fill responsible positions with creameries, ice cream factories, milk plants and farm dairy establishments. To young men desiring to engage in these lines of business the Department of Dairy Husbandry of the University of Missouri offers eight weeks of intensive training to fit men for this work. The course opens January 2, and closes February 25, 1922.

To attain advancement or achieve success in these lines of work one must know how to employ skilled and technical labor to the best advantage, and he must be able to solve the problems of business management. He must know the best methods of factory management, and be able to adopt and apply new methods as fast as they are developed. The value of the products handled is so great, and so dependent upon quality that the plant must produce the largest amount of the highest quality product from raw material handled.

The entire charges for the course are the usual library, hospital and incidental fee of \$15.00, and laboratory charges totaling approximately \$15.00. The method of studying these problems and the character of instruction given is indicated in the following brief statement of courses.

OUTLINE OF COURSES

	Lecture Periods	Laboratory Periods
*Farm Dairying	24	16
*Milk Production	24	0
*Advanced Dairy Cattle Judging	0	8
Creamery Butter-making	16	24
Ice Cream Making	16	16
Market Milk	16	8
Dairy Bacteriology	8	8
Judging Dairy Products	0	8
Dairy Mechanics and Refrigeration	0	16
Creamery & Milk Plant Management	8	0

*Courses starred optional according to arrangements made.

DESCRIPTION OF COURSES

1tw. **Farm Dairying.** Described on page 32.

2tw. **Milk Production.** Described on page 32.

4tw. **Advanced Dairy Cattle Judging.** Described on page 32.

4tw. **Creamery Butter-making.** The lectures given cover receiving, grading, testing milk and cream, neutralization, pasteurization, cream ripening, propagation of starters, churning, packing, printing, and analyzing butter. The laboratory work consists of butter-making in the college creamery, and provides application for all the principles discussed in the lectures.

5tw. **Ice Cream Making.** More attention is given each year to instruction in this subject because of the rapid development of this industry. This course includes standardization of ice cream mixes for fat and solids, use of the emulsifier, manufacture of various kinds of frozen products, freezing, packing and storing of ice cream. Laboratory work gives practical experience and lectures take up a discussion of each phase.

6tw. **Market Milk.** Special study is given to the many problems concerned in the transportation, care, handling, and delivering of milk from time of production through the country stations and city plants until delivery is made to the consumer. The subjects given consideration both in the lectures and through application in the laboratory and creamery are: standardization, separation, clarification, pasteurization, and bottling of milk and cream; the proper handling, operation and care of all the equipment; sanitary inspection of farm and city plants; and problems of public control.

7tw. **Dairy Bacteriology.** The course in Dairy Bacteriology has been established because of the demand and the desirability that dairy plants turn out products with a low bacterial count. The manufacturer should acquaint himself with the kinds of the bacteria, and methods of determining their source. This subject includes a study of all important milk organisms, their significance in milk and in the manufacture of butter and cheese, and methods and practice of making bacterial counts.

8tw. **Judging Dairy Products.** The work of this class consists in scoring and judging milk, butter, cheese, ice cream and by-products. It will consist principally of laboratory work, though supplemented by occasional lectures. This course will enable the student to recognize the various grades of products and acquaint him with the product demanded by the different markets.

9tw. **Dairy Mechanics and Refrigeration.** A study of the management, care and operation of power machinery for the dairy, including steam boilers and engines, gas engines, electric motors and

refrigeration plants. A brief study is made of the more simple power transmission problems. Work in soldering, babbitting, pipe fitting, belt lacing, etc., is also included.

10tw. **Creamery and Milk Plant Management.** This includes a thorough study of the management of dairy manufacturing and distributing plants, giving particular attention to study of overrun, manufacturing losses, costs of manufacture, markets and marketing of dairy products, best mediums for advertising, business methods and bookkeeping.

THE FARMERS' WEEK SHORT COURSE

In January each year the College of Agriculture offers a short course in agriculture for farmers in connection with the Farmers' Week program arranged in co-operation with the State Board of Agriculture. In this course special lectures and demonstrations in soils, field crops, animal husbandry, dairying, horticulture, farm management, forestry, rural economics, veterinary science, and poultry farming are given in the classrooms, laboratories, and Live Stock Pavilion belonging to the University. Nearly 3,000 farmers were enrolled for this course in 1921. The course will be given again January, 1922.

For further information concerning the Farmers' Week Short Course offered Farmers' Week or the work of the Agricultural Extension Service, write to

Agricultural Extension Service,
University of Missouri,
Columbia, Missouri.

FOUR-YEAR CURRICULA IN AGRICULTURE FOR MEN

Students who have had the equivalent of a four-year high school training are advised to enter the regular four-year curricula in agriculture, rather than the Short Course. The opportunities for graduates of the longer courses are unlimited. The college has not been able to supply the demand for farm managers, teachers in agricultural schools, investigators in experiment stations, scientific aids in the United States Department of Agriculture, farmers' institute lecturers, and agricultural journalists.

One of the recognized functions of the College of Agriculture in its long courses is to train for actual farm work. The University of Missouri believes that any one who is to manage a good Missouri farm is entitled to the same high grade of instruction as is the lawyer, the physician, the engineer, the preacher or the teacher. Every important phase of farming is given careful attention—live stock raising, fruit growing, grain farming, dairying, poultry raising, drainage, crop rotation, and business management.

Fifteen units, the equivalent of a four-year high school course, are required for admission to the regular curricula in agriculture. A unit is the equivalent of a high school subject pursued five periods a week for at least thirty-six weeks.

Applicants for admission who are deficient in a small part of the requirements may be admitted conditionally at the discretion of the committee on entrance.

Mature men and women may be admitted to the College of Agriculture for special study in such subjects as they are prepared to pursue with profit to themselves. Such students must be at least 21 years old. Special students are not candidates for degrees and cannot become such until they have fulfilled all requirements for admission. Entrance cards for special students are issued by the Registrar, to whom applications for admission should be sent.

For further information concerning the four-year course in agriculture write to

F. B. MUMFORD,
Dean, College of Agriculture,
Columbia, Missouri.

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COLLEGE OF AGRICULTURE

ANNOUNCEMENT 1922-23



ISSUED THREE TIMES MONTHLY; ENTERED AS SECOND-CLASS MAT-
TER AT THE POSTOFFICE AT COLUMBIA, MISSOURI.—9,000

MARCH, 1922

CALENDAR FOR 1922-23

1922

Fall Term

August 28Monday, entrance examinations
August 29, 30Tuesday, Wednesday, registration
August 31Thursday, 8 a. m., class work begins
October 30Monday, 8 a. m. to { First term, Two Year Winter
December 20Wednesday, 4 p. m. { Course in Agriculture.
November 30Thursday, Thanksgiving Day, holiday
December 20Wednesday, 4 p. m., fall term closes

Winter Term

December 29, 30 ..Friday, Saturday, registration

1923

January 1Monday, 8 a. m., class work begins
January 1Monday, 8 a. m. to { Second term, Two Year Winter
February 23Friday, noon { Course in Agriculture
April 22Sunday, Baccalaureate Address
April 25Wednesday, Commencement Day

Spring-Summer Term

April 26Thursday, term opens
June 16Saturday noon, first half of term ends
June 18Monday, 8 a. m., second half of term begins
July 4Wednesday, Independence Day
August 11Saturday noon, spring-summer term ends

OPPORTUNITIES IN AGRICULTURE

At the present time there is a greater demand than ever before for trained men in agriculture in such fields as farming, college and normal school teaching, the teaching of vocational agriculture, investigational work, extension work, agricultural journalism, etc. The College of Agriculture, University of Missouri, trains men to understand better the problems of agricultural development. Some of the many opportunities open to those who have had training in the College of Agriculture are described below.

I. FARMING

The College of Agriculture of the University of Missouri believes that the man who is to have the management of a Missouri farm should have the same opportunity for training in his profession as has the physician, the lawyer, the teacher, or the engineer. The standard of production must be raised. The College of Agriculture offers training in each of the following branches of farming:

a. General Farming. The average farmer is interested in a diversified system including many enterprises. A well-rounded course is offered in which opportunity is given for specialization along lines in which the student is particularly interested.

b. Live Stock Farming. The most profitable farms in the Middle west are live stock farms. Live Stock farms which yield the largest returns are equipped with pure bred or high grade animals. The business of breeding pure bred live stock is profitable. The demand for high class animals is increasing rapidly. The college teaches breed types, pedigrees, and expert handling of pure bred, registered live stock, as well as production of live stock for market.

c. Grain Farming. A large number of farms in the corn and wheat belts are operated primarily as grain farms. In order to make these farms yield the highest possible returns, the owners or managers must have special training in the planting, cultivation and harvesting of crops, the care and handling of the soil, the use of rotations and fertilizers, and a practical knowledge of farm management. The College of Agriculture offers this training.

d. Dairy Farming. There probably is no one branch of agriculture in which there has been greater growth in the last decade than that of dairy farming. Farmers with inferior cattle are demanding a better grade. The dairyman who knows how to breed and feed dairy cows and how to care for and market their products has an unlimited opportunity. Probably no branch of agriculture is so dependent upon training for success.

e. Fruit Growing. There is a great demand for first-class fruit and the man who knows how to produce this has an excellent opportunity to develop a very profitable enterprise. Graduates who have received training in fruit production at the Missouri College of Agriculture have established a national reputation for themselves. There are a large number of Missouri orchards which are unprofitable. This is caused by the trees having received improper care. The students who complete the Four-Year Course in Agriculture are well equipped for the care and handling of fruit and fruit trees.

f. Poultry Farming. The College of Agriculture has a well equipped poultry plant and teachers of national reputation. In later years farmers are beginning to realize that poultry raising is one of the best enterprises and large numbers of them are finding it very profitable. Those who care for their flock best are the ones who make the most money. The College of Agriculture teaches the best methods of handling poultry.

II. COLLEGE WORK

With the world-wide awakening to the need of better farm methods has come a correspondingly rapid growth and development of agricultural colleges everywhere. This has opened many teaching positions to those who know agriculture and know how to teach it to college students. One of the serious problems confronting our agricultural colleges is to find men equipped by training and natural inclination to fill the teaching positions which are always waiting. More than 4,000 teachers are employed by the agricultural colleges of the United States.

III. TEACHING VOCATIONAL AGRICULTURE

No field of agriculture offers more attractive initial salaries to college graduates than does the teaching of agriculture in the high schools of this state. Under the provisions of the Smith-Hughes Act recently enacted, which provides federal and state funds for the support of high school agricultural courses, this branch of education has undergone a great period of growth within recent years and promises an even greater development. There is an excellent demand for well-trained graduates of the College of Agriculture who have taken sufficient work in education to qualify as teachers of vocational agriculture. This demand is a constant one because of the increasing number of high schools which are adding agriculture to their curricula and because of the number of vocational teachers who from time to time leave the teaching profession to enter other fields for which the

teaching of vocational agriculture has been admirable training. A course adapted especially for the training of teachers of Vocational Agriculture and leading to the degree of Bachelor of Science in Agriculture is being offered. It is designed to give a broad, comprehensive training. See curriculum on page 30.

IV. INVESTIGATIONAL WORK

Men with sufficient training to do research work are in constant demand by experiment stations, the United States Department of Agriculture, and by commercial and industrial firms.

a. Agricultural Experiment Station Work. Of even greater importance than the teaching of scientific agriculture in colleges and secondary schools is the investigation of farm problems conducted by the various agricultural experiment stations. These problems are concerned with improvement of the standard farm crops and the breeding of new varieties of grains and forage plants; the control of plant and animal diseases; the chemical analysis of soils and fertilizers; the economical feeding of live stock for meat, milk, and labor; the control of injurious insect pests; the study of chemical and bacterial agencies in the soil; the working out of practical methods of orchard, farm and garden management. The field for agricultural research is unlimited and the demand for such investigations increases with the years. Nearly 2,000 persons are now engaged in agricultural experiment station work in the United States.

b. United States Department of Agriculture Work. The various bureaus of the Department of Agriculture are continually offering through the Civil Service Commission, many excellent positions in their research laboratories. Most of these positions require that the applicant be a graduate of an agricultural college.

c. Commercial Work. Commercial and industrial firms have long realized that they must maintain their own laboratories for experimental work. The opportunities in this line are good, since practically every manufacturing concern, packing house, fertilizer company, agricultural lime company—in fact, every large concern—maintains a research staff. The College of Agriculture offers the best training available for this work.

V. AGRICULTURAL JOURNALISM

The number of agricultural college graduates who have taken editorial positions with farm papers in the last five years has probably been greater than in the twenty years preceding. It is a growing field, affording excellent opportunities.

In view of the growing demand for this course, the College of Agriculture and the School of Journalism combining, have organized a special course in agricultural journalism. This work leads to the degree of Bachelor of Science in Agriculture (in Agricultural Journalism). A special curriculum has been arranged for this work. See curriculum D, page 35.

VI. EXTENSION WORK

The big problem of the agricultural colleges and experiment stations today is the problem of how to carry the information in their possession to the farmers of the nation and apply it directly to the farm. The farmers themselves and all persons interested in the farm are demanding that the agricultural college expand its extension service. It will take a good sized army of men to meet the needs of the extension service during the next decade. These men must be college graduates. They must know the "how" and "why" of farming. Sixty-three counties in Missouri have county agents at the present time April 1, 1922. The interest in this work seems to have increased rather than diminished since the war.

VII. COMMERCIAL AND INDUSTRIAL WORK

Salesman, field men, chemists, foremen and managers are always in demand by firms dealing in agricultural products, such as packing houses, fertilizer works, feed companies, creamery companies, poultry plants, grain dealers and milling companies. Also industrial departments of railroads, farm machinery supply houses, elevators, farmers' exchanges, cooperative societies, and real estate companies demand men trained in agriculture.

VIII. SERVICE IN THE UNITED STATES DEPARTMENT OF AGRICULTURE

The United States Department of Agriculture holds to the agricultural interests of the entire nation a relation similar to that which the College of Agriculture holds to the farming interests of Missouri. Altogether there are 18,000 persons in the service of the national Department of Agriculture. Under its supervision comes the extensive meat inspection service, food inspection, and various other forms of government inspection; the weather service with branches and sub-stations in every state; an extensive publication service; the administration of government agricultural and forest lands; an extension service covering every phase of agricultural activity concerned with

the actual processes of farming, the farm home, social conditions on the farm, or the education of the farm boy and girl thru the medium of boys' and girls' clubs. Most of these positions are open only to graduates of agricultural colleges.

IX. LANDSCAPE GARDENING

In the care of country estates, city parks, and municipal improvement projects, men are needed who understand soils, fertilizers and the general principles of plant growing and development, and who combine with this fundamental knowledge a thoro acquaintance with trees, shrubs, and flowering plants as well as a knowledge of the principles underlying landscape gardening.

X. AGRICULTURE AND HOME ECONOMICS FOR WOMEN

Attention is called to the special curriculum in agriculture and home economics which has been arranged for the benefit of young women in the country who desire to have a knowledge of modern methods of agriculture. This course is correlated with the work in home economics and it is possible to get a complete training in the latter subject while pursuing courses in agriculture. The agricultural subjects adapted to women are largely in the departments of soils, farm crops, horticulture, botany, poultry husbandry, dairy husbandry, and animal husbandry.

See page 32 for curriculum.

XI. AGRICULTURAL LEADERSHIP

The farmers are rapidly becoming a powerful factor in national affairs. Through such farmers' organizations as the Farm Bureau, Farm Club, Grange, Farmers' Union, and others, the farmer is in a position to exercise great influence and to render exceptional service in directing the affairs of the nation. To serve agriculture efficiently he must be able to think clearly and to know well the farmers' problems. The College of Agriculture trains men to think. The graduates of the College of Agriculture are trained for leadership.

XII. MISCELLANEOUS

Soil survey workers are in demand in the various states. Several firms have established an agricultural consulting service similar to that of consulting engineers. They demand trained men to help carry on their work. Land appraisers are wanted in the farm loan business.

Trained men are necessary in the carrying on of the feed and fertilizer control work in the various states. In addition, opportunities are open in the following lines of work: floriculture and market gardening, sugar chemists, country ministers, Y. M. C. A. and Y. W. C. A. country secretaries. Foreign service offers advantages in such work as: agricultural missionaries, agricultural specialists for foreign governments, salesmen of farm implements, and foreign trade specialists.

THE VALUE OF A COLLEGE EDUCATION TO THE FARMER

An investigation of the incomes of 656 farmers in one county of Missouri, made by the Missouri College of Agriculture, showed that the educated farmer's income was 71.4 per cent larger than that of the untrained farmer.

The Kansas State Agricultural College has made a survey of the incomes of 635 farmers in seven counties and found that the trained farmer has a greater income by nearly \$1,000 a year than those farmers with a common school education.

The United States Department of Agriculture reports a survey of three representative areas in Indiana, Illinois and Iowa. It is shown that tenant farmers with a college education received an average labor income of \$453 more a year than the man with a high school education and \$979 more a year than the man with only a common school education.

Cornell University reports that men having more than a high school education received \$225 more a year than farmers with a high school education and \$529 a year more than farmers with a common school education. They also report that 5 per cent of the farmers with a district school education had labor incomes of more than \$1,000, that 20 per cent of the farmers with a high school education had labor incomes of more than \$1,000, that 30 per cent of the farmers with more than high school education had labor incomes of more than \$1,000. A high school education is worth as much to a farmer as \$6,000 worth of 5 per cent bonds. A college education is worth nearly twice as much.

The Agricultural Experiment Station of Nebraska reports on a survey of 409 farmers in Nebraska in 1914. Those farmers who attended high school increased their labor incomes 32.1 per cent over the farmer with a common school education, and those farmers who

attended college increased their labor income 51.8 per cent over the farmer with a common school education.

An investigation by the Tennessee Educational Bulletin shows that "Each day spent in high school is worth \$25 to each pupil, each day in college \$55.55." **How can you afford not to attend college?**

There is no question but that the money invested in a college education is the best investment a young man can make.

Only 1 per cent of the total population of the United States are college men, yet from this 1 per cent come 73 per cent of the leaders in our national life. Ninety-nine per cent of our population, or the group having no college education, furnish only 27 per cent of the leaders.

President J. C. Jones of the University speaking before the Easter meeting of the St. Louis Chamber of Commerce quoted statistics to show the financial advantage of a college education. "The earning power of the college graduate is 100 per cent greater than that of a non-graduate," he said.

Appleton's Encyclopedia of American Biography shows that 277 times as many college bred men have become wealthy as men who are not graduates of institutions of higher learning. Ninety per cent of college men make good as contrasted with 10 per cent of high school graduates only."

"Statistics relating to the education of men who fill responsible positions established the fact that 55 per cent of the presidents of the United States have been college graduates; of the vice-presidents, 54 per cent; the Cabinet, 50 per cent; Chief Justices, 85 per cent; Senators, and Representatives, 36 per cent. Fifty per cent of the Governors of Missouri since 1870 have been college graduates. Of sixty-eight railroad presidents who responded to President Jones' request for statistics some years ago twenty-seven were college graduates."

"A college education is the most practical thing in the world, because it can be turned to financial gain and the achievement of civic honors."

THE COLLEGE OF AGRICULTURE

OPEN THE ENTIRE YEAR

The work at the University of Missouri continues thruout the entire year. Three terms of sixteen weeks each are offered. A student may enter at the beginning of any term. Not many students remain in school for eight consecutive terms in order to finish the work for a degree, altho it is possible to do so. The three-term plan has special advantages for the student in agriculture in that the winter term closes in April and allows the student to be on the farm during practically all of the busy season. However, those students who desire to spend the spring-summer term in the University may continue their work.

COMPLETE AND MODERN EQUIPMENT

NEW BUILDINGS

New Agricultural Building. The new Agricultural Building now in the process of construction will contain approximately one acre of floor space. In addition to class rooms, the departments of Soils, Poultry Husbandry, the Agricultural Library, Offices of the Dean and Director, the Agricultural Editor, the University photographer, and the agricultural museum will be housed in this building. An appropriation of \$200,000 has been made for this structure.

New Chemistry Building. An appropriation of \$125,000 has been made for the construction of the new Chemistry Building. Students in the College of Agriculture will do their general chemistry work in this building.

New Cattle Barn. A new beef cattle barn will be erected on the University Farm during the summer of 1922. The plans anticipate a building that will house 100 head of cattle and feed enough to care for them thru the winter. It will be equipped with two silos, feed grinder, and other essential equipment. The barn will be 66 ft., in width, 202 ft. in length, with half basement, and of the same general type as the other barns on the University Campus.

Other Buildings. Appropriations have been made for the following new buildings which are indirectly a benefit to the College of Agriculture: new hospital, \$250,000; new women's building, \$150,000 and a new power house, \$150,000.

BUILDINGS

Agricultural Building. A two-story stone structure with a high

basement and an auditorium seating 500 persons. After the construction of the new building is completed, this building will house the departments of Field Crops, Animal Husbandry, Agricultural Education, and the Agricultural Extension Service.

Horticultural Building. A stone building, two stories high with a well-lighted basement, with plant house and insectary, classrooms, laboratories, offices and preparation rooms for horticulture, landscape gardening, and entomology. A new class room and laboratory has been completed on the third floor of the Horticultural Building.

Dairy Building. A stone building, two stories high containing rooms for creamery manufacturers, cheese-making, farm dairy work, milk-testing laboratory, dairy bacteriology, offices, and classrooms.

Physics Building. This building on the East Campus is a modern fire-proof laboratory. Lecture rooms and laboratories are well-lighted, excellently equipped, and convenient.

Schweitzer Hall. A two-story stone building for agricultural chemistry, 170 feet long and 65 feet wide, with well-lighted basement. Half of the first floor is occupied by the offices and general chemical laboratories of the Agricultural Experiment Station. The basement contains a thoroly equipped nutrition laboratory with demonstration room and large refrigerating rooms offering exceptional facilities for meat studies, including dressing and curing. The rest of the building is given over mainly to students' laboratories, lecture rooms, and class-rooms.

Biology Building. A two-story stone building with an exceptionally well-lighted and ventilated basement. The building is 220 feet by 60 feet. It is of fire-proof construction thruout and is considered the most modern laboratory building of the University. The departments of zoology and botany, in which agricultural students receive instruction, are housed in this building. The laboratories are equipped with modern furniture and fixtures. There are two large lecture rooms in this building.

Home Economics Building. A two-story, fire-proof, stone building containing class rooms and laboratories for students in home economics.

Veterinary Building. The veterinary department is housed in a new three-story stone building given over exclusively to investigation and instruction in veterinary science. The building contains laboratories for anatomy, physiology, investigations in contagious and infectious diseases, and operating rooms for clinics.

Poultry Building. A two-story stone building, including general office, incubator room equipped with various types of incubators, class-rooms, and laboratory.

The poultry department has one fifteen-pen laying and breeding house, a feed house with killing pen in the basement, three farm poultry houses, one experimental breeding house, and ten portable colony houses. Several hundred fowls, representing the popular varieties, are kept for instructional and experimental purposes.

Agricultural Engineering. A one-story stone building housing the lecture rooms and laboratories of the department of Agricultural Engineering.

Live Stock Judging Pavilion. The Live Stock Judging Pavilion is available for the instruction in live stock judging and animal production. This building is adjacent to barns on the University Farm. It is of steel and wood construction, the frame work being of steel. The outside dimensions are 90x160 feet. The arena is 50x120. It has a seating capacity of 1,500. The arena can be divided by dropping a large curtain, thus making it possible to hold two large classes in live stock judging at the same time. The building includes, in addition, offices, practicum rooms, locker rooms, and shower baths. During four winter months, it is also used as a gymnasium for the short course students.

Greenhouses. Six greenhouses are available for instruction and investigation. Three greenhouses, each 25x100 feet; two, each 16x50 feet, and one 25x50, embracing a total of 10,350 square feet under glass, are used by the departments of horticulture, entomology, botany, soils, and field crops. In addition to these there are 1,000 square feet of hot bed and cold frame space under glass. This glass space affords facilities for instructional work, the maintenance of plant collections, and investigations.

Barn Equipment. Special barns for horses, sheep, dairy cows, and hogs, and feeding sheds for beef cattle are included in the equipment of the College of Agriculture. All barns, sheds, and lots are constructed with practical usefulness in mind, and information concerning their efficiency is available.

LABORATORIES

Agricultural Engineering. The agricultural engineering laboratory contains a large assortment of modern machinery, including one or more of the principal field and power machines. For instruction in gas engines and tractors, the laboratory is equipped with fourteen stationary and portable gasoline and oil engines, several four-cylinder motors, various types of transmissions and differentials, and thirteen of the latest types of tractors with suitable equipment for testing them. Five electric lighting plants,

one acetylene lighting plant, four water systems, and two septic tank models are available for study. Drafting tables are provided to accommodate the men designing farm buildings. The equipment for concrete work includes a complete set of concreting tools, molds for building blocks, forms for fence posts, water troughs and tanks, and tile machines, with small apparatus for testing cement and aggregates. Levels and transits with a complete set of tools are provided for farm surveying and tile drainage work.

Botany. Laboratories for physiological and structural botany, and culture rooms for physiological, and bacteriological work are in the Biology Building. They are equipped with compound and dissecting microscopes, microtomes, steam and steam pressure sterilizers, incubators, balances, precision apparatus, and glass ware. The herbarium amply illustrates the local flora.

Agricultural Chemistry. Schweitzer Hall, the new agricultural chemistry building, furnishes exceptional classroom and laboratory facilities for undergraduate instruction. The new building has two large student laboratories, a nitrogen laboratory, two balance rooms and an ether extraction room exclusively for student laboratory work. The total capacity of the laboratories is 260 students each term. A number of research rooms are provided to facilitate the research work of more advanced students, giving special opportunities for investigations of problems in animal nutrition, silos, fertilizers, foods and feed stuffs, including a critical study of the provisional and official methods of the Association of Official Agricultural Chemists.

Entomology. The laboratories and insectary in the Horticultural Building are supplied with microscopes, dissecting instruments, microtomes, breeding cages, aquaria, spraying machines, insecticides and reagents. The museum contains collections of several thousand species of the more injurious and beneficial insects, arranged to illustrate their habits of work and life history.

Horticulture. The horticultural laboratories occupy about 6,000 square feet of forcing-space under glass, a laboratory for the propagation of dormant plants, and storage room for cuttings, bulbs, stocks, and scions. The department also has laboratories for soil examinations and investigation of special horticultural problems regarding plant growth. The out-of-door collection on the horticultural grounds comprises about 1,000 varieties of fruit, ornamental shrubs and trees for a study of planting, pruning, cultivating, and spraying.

Field Crops. The laboratories for instructional and investigational work include a large and well-equipped laboratory for the study and exhibition of the various types and most important varieties of

field crops, including material and equipment for the judging and handling of grains, a room for storing and preserving classroom material, a germinating room, a seed house, a research laboratory, and a seed testing laboratory maintained in cooperation with the United States Department of Agriculture. The department also maintains an economic plant garden in which are grown the various types and principal varieties of all field crops, together with the most prominent wild related forms. This affords an excellent opportunity for the study of such crops in the field and material for systematic study of botanical characters and relationships in the laboratory.

Dairy Husbandry. Facilities for instruction in dairy manufactures and dairy products include a creamery room equipped with power separators, churns, pasteurizers, sterilizers, and butter printers; a cheese room provided with vats; cheese presses; a cheese curing room; cream separators, milk testing apparatus, and hand churns; refrigerating and cold storage plant; laboratories for instruction and investigation in dairy bacteriology, and for investigation in the composition of milk. From 600 to 1,000 pounds of milk are clarified, pasteurized and bottled daily for the University Commons. From 500 to 1,000 pounds of butter are manufactured each week thruout the year. The surplus skimmilk is sold. Cream cheese and ice cream are also manufactured regularly.

Soils. The facilities for instructional and investigational work in soils include a large soils laboratory for the required course of instruction, a soil bacteriological laboratory, storage rooms, and a special laboratory for advanced students. The equipment of the laboratories includes that necessary for work in soil physics, soil fertility, and soil bacteriology. A plant house 30x65 feet is provided for special experiments by students and by those engaged in experiment station investigations. In addition, the various soil experiments in progress on the Agricultural Experiment Station field offer special opportunity for both instruction and investigation, while the results of the soil survey and of the various outlying soil experiment fields are used to good advantage in the instructional work.

Physics. The physics laboratories are in the Physics Building. Rooms are equipped with various electric circuits, compressed air, gas, and hot and cold water. The equipment is modern and adequate. The lecture rooms are especially designed for experimental demonstrations in general physics with special apparatus for this work.

Zoology. Laboratories for the study of general zoology, embryology, cytology, and other zoological subjects are in Biology Hall. They are equipped with compound and dissecting microscopes and other apparatus which is required in the different courses of-

ferred. The lecture room is equipped with a stereopticon lantern for the projection of microscopic slides, lantern slides and opaque objects.

University Serum Farm. The hog-cholera serum plant is on a 90-acre farm about two miles north of Columbia. The plant has a capacity of 50,000,000 cubic centimeters of serum a year. When at full capacity, 1,500 hyper-immune hogs can be kept, and the College will be able to meet any emergency. With this equipment the students in the College of Agriculture are able to make a thoro study of the methods of controlling and eradicating hog cholera as well as of the manufacture of serum.

LAND EQUIPMENT

Altogether there are 700 acres in the University Farm. A large part of this is hilly bluegrass pasture. There is cultivated land for the requirements of instruction, and students are given an opportunity to study in the field the effects of proper and improper soil management and crop rotation as well as to observe all the facts of plant growth and plant development, which are necessary to a proper understanding of field crop rotation. The horticultural grounds are adequate to teach the principles of orchard and garden management in every detail.

In addition to this land a farm of 330 acres is rented by the animal husbandry department.

The University owns eighty acres of land near Turner Station, five miles south of Columbia. This farm lies on the fertile loess soil common along the Missouri River, said to be the best fruit soil known. More than forty-five acres are now planted to the leading varieties of apples, peaches, pears, plums, cherries, and small fruits adapted to Missouri. Here students study the adaptation and characteristics of the different fruits and observe the effect of different cultural methods used.

LIVE STOCK EQUIPMENT

Dairy Herd. The department of dairy husbandry has nearly one hundred head of pure bred animals of the Jersey, Holstein, and Ayrshire breeds. Twenty-two cows in the herd have produced more than 700 pounds of butter in a year. Six of these are above 800 pounds, and two above 900 pounds. Practically the entire Jersey herd are daughters of one bull, Sultana's Virginia Lad. His entire list of daughters in this herd have official records averaging 523 pounds of butter as 2-year olds which is an increase of 45 per cent in

milk production and 60 per cent in fat production over their dams at the same age. Others give promise of great records as they develop, and four have already come back with records above 700 pounds.

In the Holstein herd, seven cows have produced more than 20,000 pounds of milk in one year, their average records being 22,478 pounds. One has three yearly records averaging 21,661 pounds and a life record of 157,896 pounds of milk containing 4,929 pounds of fat, equivalent to 6,121 pounds of butter.

The herd as now constituted represents a combination of the blood of Sir Pieterje Ormsby Mercedes, believed by many to be the world's greatest sire of yearly high producing cows and show-ring winners, and Sir Korndyke Hengerveld DeKol, and the blood that produced Missouri Chief Josephine, a cow which produced 26,861 pounds of milk. The entire Holstein herd, excepting one herd bull, has been bred and developed on the college farm.

Horses. The department of animal husbandry maintains a stud of thirty horses representing Percherons, American Saddle Horses, standard-bred horses, and Morgans. Sons and daughters of some of the most famous sires of America are included. In addition there are available for instructional purposes ten head of high class work horses and mules—besides several stables of sale, breeding, and show horses and mules in or near Columbia.

Swine. The swine herd includes breeding herds of Duroc Jerseys and Poland Chinas. About twenty-five mature sows are kept. These, with their offspring, make a herd of 150 to 200 hogs, which furnish material for instructional purposes in pork production and in swine judging. From 15 to 25 head of fat barrows are exhibited at live stock shows each year. The herd has produced grand champions at the International Live Stock Show, and these together with their sires, dams, and pigs of similar breeding, are available for instructional purposes.

Beef Cattle. The department of animal husbandry maintains a herd of about sixty-five head of pure-bred beef cattle, representing the Shorthorn, Aberdeen-Angus, Hereford, and Galloway breeds. The breeding herd is maintained in a practical and productive manner which forms a basis for a study of the management of beef cattle and supplies specimens for judging work. A herd of show steers exhibited each year at some of the leading live stock shows in the United States is also available for judging practice. This herd includes champion and first prize individuals, together with some first prize groups.

Typical specimens of the various market classes and grades of cattle are obtained from a market center each winter for demonstra-

tion purposes. The Agricultural Experiment Station beef cattle, numbering from forty to eighty head, are also available for study.

Sheep. A breeding flock of about one hundred pure-bred sheep representing the Shropshire, Hampshire, Dorset Horn and South Down breeds is maintained for instructional work. A small graze flock is also kept to illustrate the market classes and grades of sheep and to emphasize the value of using pure-bred rams. The students are taught to shear the sheep, prepare them for exhibition, and to manage the flock from the farmer's standpoint.

THE TEACHING STAFF

Sixty-four teachers give their time to the instruction of agricultural students in the strictly agricultural subjects. They also give a considerable part of their time to making experiments and a limited part to extension work among the farmers of the state. This combination of duties places them in a position to teach most effectively because they are in close contact with the farmers, while at the same time they are helping solve the farm problems. Twenty-five persons give their entire time to extension teaching and demonstration in agriculture and home economics out in the state. In addition to this corps of teachers, there are forty-six teachers who give instruction to agricultural students in the fundamental sciences, such as geology, zoology, botany, chemistry, and physics, upon which sciences technical agriculture is founded.

THE COURSES OF STUDY

The fundamental idea in planning the course of study at the College of Agriculture is to train men to be farmers, teachers, and investigators in the broadest sense of the terms. The course is founded on the belief that to be a successful farmer, a successful teacher of agriculture, a successful investigator of farm problems, or a practical writer on farm subjects, a man must first of all understand farming; he must be taught to see the application of every scientific fact to the actual practice of farming; he must be taught to realize that the whole scheme of agricultural education centers about the soil and its products. This is the idea upon which the course in agriculture at the University of Missouri is built.

Undergraduate Instruction. The undergraduate courses lead to the degrees of Bachelor of Science in Agriculture, and Bachelor of Science in Agriculture (in Agricultural Journalism.) The College of Agriculture is fortunate in being organized as a division of a Uni-

versity comprising a College of Arts and Science, a School of Education, a School of Engineering, a School of Mines and Metallurgy, a School of Law, a School of Journalism, a School of Medicine, and a School of Business and Public Administration. Coordinating with the work of the University, altho independent from it, is also the Missouri Bible College. The student in agriculture, if he desires, may broaden his course by electing subjects from any of the other divisions of the University. His associations while at the college bring him in contact with men in other divisions whose purposes and views of life are widely divergent. Because of these associations, a graduate of the College of Agriculture leaves the University a broader man, with a better understanding of the world in which he is to live and of which he is to form an important part. Because of his breadth of view, and because of his studies outside the technical field of agriculture, he is better fitted for a higher citizenship and for a higher place in community life than is possible where opportunities are more restricted.

Graduate Instruction. Graduate instruction in agriculture is offered in the Graduate School of the University of Missouri. The student cannot enter the Graduate School until he has completed the undergraduate course of study at the College of Agriculture or at an institution of equal standing. The graduate course leads to the degrees of Master of Arts and Doctor of Philosophy. Those who lead in the development of agricultural life and thought must have the best training available. For those who intend to teach in a university or agricultural school or who expect to take up investigational work in an experiment station, a graduate course of study is highly important. The faculty of the College of Agriculture offers in the Graduate School of the University facilities for graduate instruction, and a large number of students of agriculture are enrolled in the Graduate School.

To encourage graduate study the University offers a limited number of scholarships paying \$300 a year and fellowships paying \$600 as described in the University of Missouri catalog. Graduates of colleges are eligible for these agricultural scholarships and fellowships. Further information in reference to the scholarships and fellowships may be had by writing to the Dean of the Graduate School, University of Missouri, Columbia, Missouri.

STUDENT ORGANIZATIONS

The College of Agriculture recognizes the fact that a part of each student's training should be the development of his powers of ad-

ministration and self-government. In pursuance of this idea, student organizations have been encouraged and every student is urged to affiliate himself with some organization or some movement in which students exercise their capacity to conduct important and complicated enterprises without the directing influence of the officers of the college. Many successful organizations are conducted by agricultural students.

The Agricultural Club. This union of all agricultural students in the University has been a power for good in promoting college spirit and loyalty to the College of Agriculture. The organization has worked unselfishly for the best good of all and is worthy of the active support of every agricultural student.

The College Farmer. The agricultural college paper is published monthly during the college year. Its excellent management deserves great credit for the uniformly high character of the publication. This paper is published as a student paper entirely and helps keep the alumni informed on the happenings at the College of Agriculture. The editors and managers are elected annually by the Agricultural Club.

The Farmers' Fair. Once a year the agricultural students give a county fair. This event calls for the display of considerable ability in organization and is useful in stimulating the ingenuity of individual students. Educational exhibits divide attention with more recreative features provided by the students.

Barn Warming. A real old-fashioned barn warming is held by the students in the College of Agriculture each fall. This barn warming, formerly held in the horse barn but now in Rothwell Gymnasium, because of lack of space in the former place, is in the nature of an autumn festival.

Student Branch of A. S. A .E. This is composed of students in the School of Engineering who are enrolled for an agricultural engineering degree, and regular agricultural students taking work in the Department of Agricultural Engineering. This society meets twice a month to discuss problems of engineering as applied to agriculture.

Block and Bridle Club. An organization of students interested in animal husbandry has been formed for the discussion of animal husbandry problems. During Farmers' Week and during live stock meetings in Columbia, club members perform valuable services showing visitors the College and explaining the work that is being done. Each year they spend much time and energy fitting live stock for the show rings.

Horticulture Club. This organization is composed of graduates and undergraduates who are specializing in horticulture. Its meet-

ings are held twice a month and are given over to the reading of scientific papers and informal discussions dealing with horticultural problems.

Vocational Agricultural Teachers' Club. This club was organized for the purpose of promoting the best interests of the Smith-Hughes schools. The club meets twice a month to exchange ideas of the students and of the teachers in the field, and by so doing, it is hoped that interest in the work will be fostered.

University Grange No. 2094. The interest and responsibilities of the agricultural student do not end with his immediate surroundings in college. He justly feels that he owes a duty to the farming class to which he belongs. In the Grange, faculty and students meet and discuss the broader phases of agriculture which are of interest to them as farmers rather than students.

Students' Dairy Association. Graduate and undergraduate students in dairy husbandry have organized this association. It meets bi-monthly to discuss scientific and practical problems of dairy.

Honorary Societies. Alpha Zeta is an honorary society for undergraduate students. The membership of this society is limited to students of only the highest scholarship. Gamma Sigma Delta, the honor society of Agriculture, is a graduate honorary society including in its membership faculty, alumni, graduate students, and seniors within one term of graduation. Membership in this organization is limited to men of high scholarship, capacity for original research, and leadership in modern agriculture. Sigma Kappa Zeta is a student honorary horticultural society. Only upperclassmen of high scholarship and who are specializing in horticulture are eligible to membership.

Professional Fraternities. There are two professional agricultural fraternities, the Farm House and Alpha Gamma Rho. The membership of these two fraternities is limited to students in the College of Agriculture. Both maintain chapter houses.

Social Fraternities and Sororities. There are at the University of Missouri chapters of many of the leading fraternities and sororities. These are subject to certain rules and regulations of the faculty committee on student activities.

PRACTICAL EXCURSIONS

In order to bring students into closest possible touch with the field of practical agriculture, different departments annually arrange for a number of excursions, mainly to the farms of successful farmers and breeders. The practical excursions, therefore, become an im-

portant factor in helping the college to impress upon the student the close connection between the work of the classroom and laboratory and the practical field of agriculture.

MEDICAL ATTENTION FOR STUDENTS

Regularly enrolled students in the University who pay the full fee of \$25 a term may have free medical attention and hospital care, except those in the employ of the University who hold rank higher than that of undergraduate student assistant. In the dispensary at Parker Memorial Hospital, students may consult with and have treatment by the members of the staff of the department of clinical medicine and surgery. The attention of the same staff physicians is available to students who have to be admitted to the hospital. No charge is made for surgical operations that are considered by the staff as imperatively necessary. Hospital care is rendered without charge except for extraordinary medicines and for special nursing.

A general physical examination is required of all new students. It is carried on in the hospital at specially appointed times by the members of the department of clinical medicine and surgery. Vaccination for small-pox is required of all students.

For additional information regarding the care of students' health in the University of Missouri consult the annual catalog.

MILITARY AND PHYSICAL TRAINING

All physically fit men students in the University are required to take four terms of Military Science and Tactics and Physical Training during their freshman and sophomore years.

All women students are required to take four terms of physical training two hours a week during their freshman and sophomore years.

CULTURAL ADVANTAGES

Each year the University brings to Columbia talented lecturers, musicians, and artists. A series of musical concerts under the auspices of Phi Mu Alpha, a musical society, has become an established part of the season's attractions. Several good plays are presented each year in the University Auditorium. The University assemblies held at frequent intervals are addressed by noted men from all parts of the United States and occasionally by men from abroad. Farmers' Week and Journalism Week draw to the University men of note in the fields of agriculture and journalism. The University art exhibits

display some of the finest collection of paintings and art work that can be had outside of the principal art centers.

Students who are especially interested in a musical training will find ample facilities for such training in the University band, glee club, orchestra, or chorus. The city of Columbia, outside of the University, has some of the best teachers of vocal and instrumental music than can be found anywhere.

RELIGIOUS LIFE AT THE UNIVERSITY

On the average about 84 per cent of all the students registered in the University of Missouri are church members and about 7 per cent more have church preferences. There are more ministerial students in the University of Missouri in proportion to its enrollment than in any other state university. Members of the University faculty are active in the church life of the community. The leading religious denominations in Columbia have efficiently organized the student work of their churches. Several of the churches employ assistant student pastors.

Young Men's Christian Association. The students of the University have always taken an active interest in the Young Men's Christian Association. This Association owns a \$60,000 stone building devoted to the religious and social life of the students of the University. In the building are rooms for the accommodation of eighty students. In addition there are quarters for the secretary and other officers of the association, an auditorium for meetings, and various committee rooms used by the student organizations. New students are advised to confer with the secretary of the Young Men's Christian Association in reference to finding suitable places to board and room. Students desiring employment should also consult the secretary in charge of this work in the Y. M. C. A. Building.

Knights of Columbus Hall. Recently the Knights of Columbus of Missouri have opened up a new student home a few blocks from the University Campus. This home has rooms for seventy-two men students, meals are served, and a parlor, a billiard room and an auditorium are provided for rest and recreation. The facilities of the home are open to students of all denominations, the auditorium, in particular, being obtainable for student gatherings.

COLUMBIA A DESIRABLE STUDENT HOME

Columbia is near the center of Boone County, which is one of the central counties of the state. Branch lines lead to it from Mc-

Baine on the Missouri, Kansas & Texas Railway and from Centralia on the Wabash Railway. It is an ideal college town. The residents realize that the state of Missouri has entrusted them with the responsibility of providing a clean, wholesome environment for her sons and daughters during the four or more years of their college life. The city board of health is diligent in enforcing the health ordinances. The fire department looks to the proper equipment of all rooming and boarding houses so that the danger from fire is practically eliminated. The water supply is the best that deep-well service can afford.

Columbia is a city of broad paved streets, of beautiful shade trees, and home-like dwellings. The houses in the University section are built with an eye to beauty, comfort, and utility. In these houses, the homes of citizens, students in the College of Agriculture make their homes. There is one dormitory for men with a capacity of only twenty-three students. The Y .M. C. A. Building accommodates eighty, the Knights of Columbus Home seventy, and the Missouri Bible College building forty in addition.

REQUIREMENTS FOR ADMISSION

Candidates for admission to the College of Agriculture should write early to the Registrar, University of Missouri, Columbia, Missouri, for the general catalog of the University, blanks for reporting high school credits, and detailed information concerning admission to the University.

High school subjects which are required for admission are resigned in terms of "units," a unit being the equivalent of a subject pursued five periods a week for at least thirty-six weeks, four units constituting a year's work.

Fifteen units, the equivalent of a four years' high school course, are required for admission as a regular student to the College of Agriculture. Three units in English and one unit in mathematics are fixed requirements. These fixed requirements are waived in the case of graduates of high schools fully accredited by this University. The remaining eleven units may be selected from the list given in the University catalog. In preparation for admission to the College of Agriculture, students are strongly urged to take at least one laboratory science.

Entrance Conditions. Applicants for admission who are deficient in a small part of the requirements may be admitted conditionally at the discretion of the Committee on Entrance.

Students from accredited schools will not be admitted, subject to a condition, unless they are graduates of such schools.

Entrance conditions to the College of Agriculture must be removed within one year from the date of entrance. Students should consult with the Registrar regarding the removal of such conditions.

SUBJECTS ACCEPTED FOR ADMISSION

The subjects in which entrance units may be offered, the minimum and the maximum number of units that may be offered in each subject, and the number of units or hours required for admission to each college or school of the University, are to be found in the University catalog, which will be sent on request.

Admission by Examination. Students who have had the equivalent of a high school training either by private study or by study in an unaccredited school may gain admission to the College of Agriculture by passing entrance examinations. Permission to take the entrance examinations must be obtained in advance from the Registrar as described in the University catalog.

Special Students. Mature men and women may be admitted to the College of Agriculture for special study in such subjects as they are prepared to pursue with profit to themselves. Such students must be at least 21 years old. Special students are not candidates for degrees and cannot become such until they have fulfilled all requirements for admission as regular students. An application for admission as a special student should be made to the Registrar as described in the University catalog.

HOW TO ENTER THE COLLEGE

First, write to the Registrar, University of Missouri, Columbia, Missouri, for a blank certificate for admission and a University of Missouri catalog.

Second, when this blank is received take it to the principal of the high school (or other school) in which your preparatory education was received, tell him that you wish to enter the College of Agriculture of the University of Missouri and ask him to fill out the blank.

Third, when the blank is properly filled out mail it to the Registrar, University of Missouri, Columbia, Missouri. You will then be notified regarding your admission.

Fourth, come to Columbia on August 29, 1922, (or December 29, 1922, or April 26, 1923.) Plan to be in Columbia before the second registration day at the latest.

Fifth, go to Jessie Hall on the West Campus, where you will receive instructions in regard to registration.

Sixth, for further information in regard to entrance write to the Registrar, University of Missouri, Columbia, Missouri.

FEES AND DEPOSITS

Tuition is free in all divisions of the University to students who are residents of the State of Missouri. Non-residents of the state are required to pay a tuition fee of \$10 a term, except in the Graduate School. A library, hospital, and incidental fee of \$25 for each registration is required of all students, except those especially exempt by law or by rules of the Curators of the University. A fee of \$5 is charged for each diploma and a fee of \$2 is charged for each certificate given.

A late registration fee of \$5 is also charged against those students who do not register during regular registration period.

In laboratory courses fees and deposits are required to pay for material used, depreciation of equipment, and damage to University property. For full statement of laboratory fees and deposits see the University catalog.

LIVING EXPENSES

The necessary expenses of living a term of sixteen weeks at the University are estimated in the table below:

Fees	\$ 40
Room Rent	40
Board	120
Books, stationery, and supplies	25
Laundry	15
Incidentals	50
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Total	\$290

The estimate for board is based on the average price at the Commons and at private boarding houses. The estimate of room rent is based on the average cost of a room at private residences in Columbia. The estimate of books, laundry, and incidentals is considered liberal.

WORKING ONE'S WAY

It is variously estimated that from 25 to 40 per cent of the students in the College of Agriculture are paying all or a considerable part of their expenses by working while attending the University. A limited number of students work for the various departments of

the college in caring for the live stock, assisting in the dairy department, working in the various divisions of the Agricultural Experiment Station, including Field Crops, Soils, Veterinary Science, Rural Life, Agricultural Extension Service, Entomology, Agricultural Engineering, and giving assistance in pruning, spraying, and planting on the horticultural grounds.

Students also find employment in Columbia caring for furnaces, waiting on tables, clerking, and in numerous other ways. Prospective students who must earn part of their expenses should write to the Secretary, Employment Bureau, University Y. M. C. A., Columbia, Missouri, for information.

Regulations, Grades, and Credits. The general regulations governing grades and credits (see annual catalog) apply to all courses in this college. Students of exceptional ability may shorten the period of residence by superior scholarship. Students who in any term fall behind more than 40 per cent of the hours in which they are registered at the end of that term, or who fall more than nine hours behind the total number of hours for which they have registered up to that time, exclusive of the first term of the freshman year, will be dropped from the college. The cumulative hour rule does not apply to work taken during the first term of the freshman year, but the application of the 40 per cent rule in the case of such students shall be at the discretion of the dean.

All students who have been dropped under this rule are permitted to return after one term.

DEGREES

The degree of Bachelor of Science in Agriculture is conferred upon all students completing the four-year curriculum in agriculture for men, the four-year curriculum in agriculture and home economics for women and the four-year curriculum for the training of teachers of vocational agriculture.

The degree of Bachelor of Science in Agriculture (in agricultural journalism) is conferred upon students completing the four-year curriculum in agricultural journalism.

The degree of Master of Arts is conferred upon students by the Graduate School for two terms, graduate study in any of the departments of agriculture. (See announcement of the Graduate School.)

The degree of Doctor of Philosophy is conferred upon students in the Graduate School who have given not less than six terms of advanced study to some special branch and have attained exceptional proficiency in original research.

CURRICULA

In the description of these curricula, a year is understood to mean two terms of sixteen weeks each.

A. Four-year curriculum in agriculture for men, leading to the degree of Bachelor of Science in Agriculture (B. S. in Agr.).

B. Four-year curriculum for the training of teachers of vocational agriculture, leading to the degree of Bachelor of Science in Agriculture (B. S. in Agr.).

C. Four-year curriculum in agriculture and home economics for women, leading to the degree of Bachelor of Science in Agriculture (B. S. in Agr.).

D. Four-year curriculum in Agricultural Journalism leading to the degree of Bachelor of Science in Agriculture (in Agricultural Journalism), (B. S. in Agr. [in agr. journ.]).

E. Two-year Winter Course in Agriculture.

F. Short Course in Home Economics.

G. Short Course in Dairy Manufactures.

A. FOUR-YEAR CURRICULUM IN AGRICULTURE FOR MEN

Required Work. The prescribed courses are indicated in the four-year curriculum (A) in agriculture for men, page 29. All candidates for the degree of Bachelor of Science in Agriculture must satisfactorily complete 128 hours, including the requirement in military science and physical education. All candidates for the degree must have registered in and completed the hours (90) prescribed in the curriculum, and in addition 26 hours elected from technical agricultural courses and twelve hours from any subjects offered in the University of Missouri or other standard college. Technical agricultural subjects are all courses now being offered in the departments of agricultural engineering, animal husbandry, dairy husbandry, field crops, rural life, horticulture, poultry husbandry, soils, and veterinary science; all courses in entomology except 103w, 104f and 116f; agricultural chemistry 204f, 115w, and 205w; plant pathology; all courses in rural sociology and rural economics; woodwork 1f and metalwork 2f in industrial arts.

Candidates for graduation who matriculate without having adequate farm experience are required to have one year of practical farm experience before the degree will be conferred. All students are advised to get this experience before entering the College of Ag-

riculture. The college cannot undertake to provide the means for satisfying this requirement.

Certificates to Teach. Students by properly selecting this work may obtain the degree of B. S. in Agriculture from the College of Agriculture and the certificate to teach valid for life from the School of Education in approximately four years and one summer term in the University. To obtain this certificate the students must elect 24 hours in education which must include the following courses: Education A102, (Educational Psychology); Education B120, (History of Education); Education D111, (Theory and Observation of Teaching); Bacteriology and Preventive Medicine 1, (Preventive Medicine); Education C150, (School Economy); and Education D155, 156, 157, or 158, (Practice Teaching). Courses in education may be taken as free electives under the curriculum in agriculture. Those desiring both the degrees and certificate should plan their course in consultation with the Dean of the College of Agriculture and the Dean of the School of Education.

By electing courses in consultation with the Dean of the School of Education students may obtain a certificate to teach valid for two years and the degree B. S. in Agr. in four years.

Opportunity to Graduates of Standard Colleges. Graduates of standard colleges will be able to meet the requirements for the degree of B. S. in Agriculture upon completion of four semesters (64 hours) of work in the College of Agriculture, provided they have completed subjects listed below or substantially equivalent courses in Science:

Biological Science	15 hrs.
Geology	5 hrs.
Physics	5 hrs.
Chemistry	15 hrs.
Social Science	5 hrs.

Special Training. Students who desire a more specialized training in Agricultural Chemistry, Animal Nutrition, Entomology, Genetics, Landscape Gardening, Plant Pathology, Plant Physiology, Soil Bacteriology or Dairy Bacteriology, will be permitted to substitute not more than 15 hours for agricultural electives. Such courses must be approved by the teachers in charge of the major subject of specialization. Substitution for the technical agriculture requirements are permitted only when the teacher in charge of the major subject of specialization has definitely approved the particular courses which are to be offered for such substitutions, and in every case the special subjects selected must be approved by the Dean.

CURRICULUM A

Four-Year Curriculum in Agriculture for Men.

FRESHMEN

Fall Term

Citizenship, including English composition	5 hours
Animal Husbandry, 1f or w, (types & market classes of livestock)	3 hours
Chemistry, 1f or w, (general inorganic chemistry)	5 hours
Horticulture, 1f or w, (general horticulture)	3 hours
Military and physical education	2 hours
	<hr/>
	18 hours

Winter Term

Citizenship, including English composition	5 hours
Field Crops, 1f or w, (field crops)	3 hours
Geology, 2f or w, (physical geology)	3 hours
Botany, 1f or w, (general Botany)	5 hours
Military and physical education	2 hours
	<hr/>
	18 hours

SOPHOMORES

Fall Term

Physics, 1f or w, (elementary physics)	5 hours
Chemistry, 25f or w, (analytical chemistry)	5 hours
Dairy husbandry, 1f or w, (elements of dairying)	3 hours
Military and physical education	2 hours
Elective	3 hours
	<hr/>
	18 hours

Winter Term

Botany, 3f or w, (general bacteriology)	3 hours
Zoology, 1f or w, (general zoology)	5 hours
Soils, 1f or w, (soils)	5 hours
Military and physical education	2 hours
Elective	3 hours
	<hr/>
	18 hours

JUNIORS

Fall Term

Animal Husbandry, 100f, (principles of animal nutrition)	3 hours
*Veterinary science, 1f, (veterinary anatomy and physiology) ..	5 hours
Field Crops, 2f, (field crop management)	2 hours
Chemistry, 15f, (elementary organic chemistry)	3 hours

Winter Term

Animal husbandry, 101w, (animal breeding) or -----	} --- 3 hours
Horticulture, 115w, (evolution of cultivated plants) or -----	
Field Crops, 105w, (field crop improvement) -----	
*Botany, 100w, (plant physiology) -----	5 hours
Rural Sociology or Rural Economics -----	5 hours

Agricultural chemistry 101, (agricultural analysis), 3 hours, is required and should be taken in the junior year. Electives may then be chosen to make sixteen (16) hours.

SENIORS

Fall Term

Electives

Winter Term

Electives

*Botany, 100w, (plant physiology) or veterinary science 1f, (veterinary anatomy and physiology) only one required.

B. FOUR-YEAR CURRICULUM FOR TRAINING TEACHERS OF VOCATIONAL AGRICULTURE

The Federal Board of Vocational Education has designated the College of Agriculture as the approved institution in Missouri to prepare teachers of agriculture for the secondary schools of this state. The facilities of the College of Agriculture for teaching vocational agricultural subjects are excellent. It is the purpose of this course to give a thoroughly practical training in vocational agriculture and in education, including methods of teaching and practice teaching. To still further insure the successful training of these men for this important work, there has been organized a special department of agricultural education. The demand for trained teachers of agriculture is at present very active. The curriculum offered by this institution has the approval of the state and federal boards of vocational education and complies fully with the provisions of the federal Smith-Hughes Act.

Requirements for the Degree, Bachelor of Science in Agriculture:

All candidates preparing to teach agriculture in vocational high schools are required to complete 128 hours of University work, including military science and physical education. Each student is required to complete in a satisfactory manner the prescribed courses (115 hours) printed in the curriculum B, and in addition to elect 13 hours from the list of courses printed on page 32 under the title "Electives for Students in Vocational Agriculture." All candidates for the degree must have had

two years of continuous farm experience before the degree will be conferred.

CURRICULUM B

FRESHMEN AND SOPHOMORES

Freshmen and sophomores take the courses shown in the Curriculum (A) on page 29, excepting that Education E102 (educational psychology), must be taken in the sophomore year in place of three hours of elective work.

JUNIORS

Fall Term

Veterinary science, 1f, (veterinary anatomy and physiology) ..	5 hours
Animal husbandry, 100f, (animal breeding)	3 hours
Education, E105f, (methods of vocational agriculture, plant husbandry)	3 hours
Education, E115f, management of vocational agriculture in secondary schools)	2 hours
Field crops, 2f, (field crop management)	2 hours
Elective	1 hour
	<hr/>
	16 hours

Winter Term

Agricultural chemistry, 101w, (agricultural analysis)	3 hours
Animal husbandry, 101w, (animal breeding), or	3 hours
Horticulture, 115w, (evolution of cultivated plants), or ..	
Field Crops, 105w, (field crops improvement),	
Education, E107w, (methods in vocational agriculture, animal husbandry)	3 hours
Animal husbandry, 3w, (livestock judging)	3 hours
Agricultural engineering, 10w, (farm shop practice)	2 hours
Agricultural engineering, 30w, (farm machinery)	2 hours
	<hr/>
	16 hours

SENIORS

Fall Term

Agricultural engineering, 11f, (farm gas engines)	2 hours
Education, E117f, (visual education)	3 hours
Education, D155f, (practice teaching)	5 hours
Electives	6 hours

Winter Term

Field Crops, 101w, (grain crops)	2 hours
Sociology, 115w, (rural sociology)	3 hours
Electives	11 hours

Electives for Students in Vocational Agriculture

In addition to the prescribed courses listed in curriculum (B), students are required to elect 13 hours from the following list:

Animal husbandry, 4f or w, (Slaughtering of domestic animals, and cutting and curing of meats) -----	2 hours
Animal husbandry, 102f, (Advanced livestock judging) -----	3 hours
Animal husbandry 103w, (Beef production) -----	3 hours
Animal husbandry, 105w, (Pork production) -----	2 hours
Education, E109f or w, (Methods of teaching laboratory work in vocational agriculture) -----	3 hours
Education, E160f or w, (History of agricultural education) ----	1 hour
Education, E170f or w, (Vocational guidance in agricultural activities) -----	3 hours
English, 75f or w, (Public speaking) -----	2 hours
Entomology, 2f or w, (Applied entomology) -----	3 hours
Field Crops, 2w, (Field crop management) -----	2 hours
Field Crops, 103f, (Forage crops) -----	3 hours
Horticulture, 100f, (General pomology) -----	3 hours
Journalism, 127w, (Agricultural journalism) -----	3 hours
Poultry husbandry, 2w, (Poultry production) -----	3 hours
Rural Life, 2f or w, (Principles of rural economics) -----	3 hours
Rural Life, 105f, (Farm accounts) -----	3 hours
Soils, 2w, (Soil management) -----	3 hours
Veterinary science, 104f, (Stock farm sanitation and disease prevention) -----	3 hours
Veterinary science, 105w, [Stock farm sanitation and disease prevention (continuation of 104f)] -----	3 hours

C. FOUR-YEAR CURRICULUM IN AGRICULTURE FOR WOMEN

The curriculum in agriculture for women emphasizes those phases of agricultural instruction of special significance to women. The degree of Bachelor of Science in Agriculture (B. S. in Agriculture) is conferred upon the completion of the required work.

Required Work: The student must complete a total of 122 hours. Of the total number of hours, 62 hours are fixed requirements as shown, in the printed curriculum below, 30 hours are major electives to be selected as indicated and 30 hours are free electives.

FRESHMEN

Fall Term

Citizenship, including English composition -----	5 hours
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Home economics, 1f, (selection and preparation of food) -----	5 hours
Chemistry, 1f, (general inorganic chemistry) -----	5 hours
Physical training -----	½ hour

Winter Term

Citizenship, including English composition -----	5 hours
Chemistry, 2w, (general inorganic chemistry) -----	3 hours
Botany, 1w, (general botany) -----	5 hours
Horticulture, 1w, (general horticulture) -----	3 hours
Physical training -----	½ hour

SOPHOMORES

Fall Term

Chemistry, 15f, (elementary organic chemistry) -----	3 hours
Home economics, 10f, (household problems) -----	2 hours
Home economics, 52f, (principles of selection and construction of clothing) -----	3 hours
Botany, 3f, (general bacteriology) -----	3 hours
Preventive medicine, 1f, (preventive medicine) -----	2 hours
Electives -----	2 hours
Physical training -----	½ hour

Winter Term

Physiology, 1w, (elementary physiology) -----	3 hours
Dairy husbandry, 1w, (elements of dairying) -----	3 hours
Home economics, 11w, (food problems of household) -----	2 hours
Electives -----	5 hours
Physical training -----	½ hour

JUNIORS

Fall Term

Sociology, 115f, (rural sociology) -----	3 hours
Electives -----	12 hours

Winter Term

Rural life, 2w, (principles of rural economics) -----	3 hours
Electives -----	12 hours

SENIORS

Fall Term

Electives -----	15 hours
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Winter Term

Electives -----	15 hours
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Major Electives (30) Hours: Students are required to select one of the three following groups of courses as a major elective:

(1). The plant group, which includes courses in botany, field crops, horticulture, soils, and entomology, not prescribed in the curriculum.

(2). The animal group, which includes courses in zoology, animal husbandry, dairy husbandry, poultry husbandry, and veterinary science, not prescribed in the curriculum.

(3) The home economics group, in which the 30 hours must be chosen from one of the following lines of specialization:

a. The Farm Home:

Home economics and other courses prescribed	18 hours
Animal husbandry, 5f, (cutting and curing of meats)	1 hour
Any home economics or technical agricultural courses not prescribed	11 hours

b. Vocational Home Economics Teaching:

Home economics other than courses prescribed	19 hours
Theory and practice of art, 2f or w, (introduction to art)	5 hours
Animal husbandry, 5f, (cutting and curing of meats)	1 hour
Home economics, 145f, (dress design)	3 hours

Of the 30 hours remaining, 15 must be given to the courses in education prescribed in the curriculum for training teachers in vocational home economics. (write for general catalog.)

Enough additional hours in home economics must be taken to total 40.

c. Home Economics Extension:

Home economics other than courses prescribed	16 hours
Education, A102f, or w, (educational psychology)	4 hours
Education, D111f, or w, (theory of teaching)	3 hours
English, 75f, or w, (public speaking)	2 hours
Home economics, 170f, (methods of extension teaching in home economics)	2 hours
Home economics, 175f, or w, (extension practice teaching)	3 hours

It is recommended that a part of the 25 hours of free electives be chosen from technical agricultural subjects.

d. Course for Training Food Chemists for Technical Laboratory Work:

Home economics, 120f, (food nutrition)	5 hours
Home economics, 121w, (dietetics)	3 hours
Home economics, 130f, (metabolism and dietetics)	5 hours

Chemistry, 27f, or w, (qualitative analysis)	3 hours
Chemistry, 121 f, or w, (quantitative analysis)	5 hours
Agricultural chemistry, 101f, or w, (agricultural analysis)	5 hours
Special problems in home economics, or	}..... 4 hours
Agricultural chemistry	
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	30 hours

D. FOUR-YEAR CURRICULUM IN AGRICULTURAL JOURNALISM

The College of Agriculture, cooperating with the School of Journalism, offers a four-year course in agricultural journalism. The purpose of this course is to train men and women for successful service in the field of agricultural journalism. An effort is made to give to the student a broad foundation in the subject of agriculture and a knowledge of the principles and practices of journalism, with particular emphasis on agricultural journalism.

The degree of Bachelor of Science in Agriculture (in Agricultural Journalism) will be given to students registered in the College of Agriculture who complete all of the requirements in the curriculum (see curriculum A) with the exception of veterinary science or plant physiology 5 hours, geology 3 hours, agricultural chemistry 3 hours, and in addition 16 hours of approved technical agricultural electives and 33 hours in journalism, the latter to be approved by the Dean of the School of Journalism.

The University of Missouri offers exceptional facilities for such training because of the high standards of instruction in its School of Journalism and the excellent facilities for agricultural training in the College of Agriculture.

The School of Journalism offers a similar course leading to the degree of Bachelor of Journalism. See Announcement School of Journalism.

CURRICULUM D

Four-Year Curriculum in Agricultural Journalism.

FRESHMEN

Fall Term

Problems in citizenship, including English composition	5 hours
Animal husbandry, 1f, (types and market classes of livestock)	3 hours
Chemistry, 1f, (general inorganic chemistry)	5 hours
Horticulture, 1f, (general horticulture)	3 hours
Military and physical education	2 hours
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18 hours	

Winter Term

Problems in citizenship, including English composition	5 hours
Field Crops, 1w, (field crops)	3 hours
Botany, 1w, (general botany)	5 hours
Military and physical education	2 hours
Elective	3 hours
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18 hours	

SOPHOMORES

Fall Term

Physics, 1f, (elementary physics)	5 hours
Chemistry, 25f, (analytical chemistry)	5 hours
Dairy husbandry, 1f, (elements of dairying)	3 hours
Journalism, 100f, (History and Principles of journalism)	3 hours
Military and physical education	2 hours
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18 hours	

Winter Term

Botany, 3w, (general bacteriology)	3 hours
Zoology, 1w, (general zoology)	5 hours
Soils, 1w, (soils)	5 hours
Journalism, 101w, (History and principles of journalism)	3 hours
Military and physical education	2 hours
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18 hours	

JUNIORS

Fall Term

Animal husbandry, 100f, (animal nutrition)	3 hours
Chemistry, 15f, (Elementary organic chemistry)	3 hours
The News	3 hours
Journalism, 115f, (principles of advertising)	3 hours
Field Crops, 2f, (field crop management)	2 hours
Elective	2 hours
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16 hours	

Winter Term

Animal husbandry, 101w, (animal breeding) or	}..... 3 hours
Horticulture, 115w, (evolution of cultivated plants) or	
Field Crops, 107w, (field crops improvement)	
Journalism, 104f, or w, (reporting I)	3 hours
Social science	5 hours

Agricultural advertising	3 hours
Elective	2 hours
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	16 hours

SENIORS

Fall Term

Journalism, 108f, or w, (reporting II)	3 hours
Journalism, 105f, or w, (copy reading I)	3 hours
Journalism, _____, (the country newspaper)	3 hours
Elective	7 hours
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	16 hours

Winter Term

Journalism, 126f, or w, (copy reading II)	3 hours
Journalism, _____, (the agricultural press)	3 hours
Elective	10 hours
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	16 hours

STATEMENT OF COURSES

AGRICULTURAL CHEMISTRY

101f, w, sp and sm. **Agricultural Analysis.** (3)—Mr. Moulton, and Mr. Ritchie.

110f, w, sp and sm. **Advanced Agricultural Analysis.** (3) to (5)—Mr. Moulton, Mr. Haigh, Mr. Ritchie.

115w. **Dairy Chemistry.** (3)—Mr. _____; Mr. Moulton.

200f, 201w, and 202 sp or sm. **Seminary.** (1)—Mr. Moulton.

204f. **Physiological Chemistry of the Domestic Animal.** (3)—Mr. Moulton.

205w. **Plant Chemistry.** (3)—Mr. Hooker.

211f, 212w, and 213sp and sm. **Research.**—Mr. Moulton, Mr. Haigh.

AGRICULTURAL EDUCATION

(E) Methods in Agriculture.

E 105f, w, sp and sm. **Methods in Vocational Agriculture (Plant Husbandry).** (3)—Mr. Sexauer.

E 107f, w, sp and sm. **Methods in Vocational Agriculture (Animal Husbandry).** (3)—Mr. _____.

E 109f, w, sp and sm. **Methods in Teaching Laboratory Work in Vocational Agriculture.** (3)—Mr. Sexauer, Mr. Ankeney.

E 115f, w, sp and sm. **Management of Vocational Agriculture in Secondary Schools.** (2)—Mr. Sexauer.

E 117f, w, sp and sm. **Elements of Visual Education.** (3)—Mr. Ankeney.

D 156f, D 157w, D 158sp and D 159sm. **Practice Teaching of Vocational Agriculture.** (Credit to be arranged)—Mr. Sexauer.

E 160f, w, sp and sm. **History of Agricultural Education.** (1)—Mr. Sexauer.

E 210f, w, sp and sm. **Special Problems in Vocational Agriculture.** (1), (2), (3)—Mr. Sexauer, and Mr. Ankeney.

E 236f, w, sp and sm. **Research in Visual Education.** (1)—Mr. Ankeney.

E 240f, w, sp and sm. **Seminary in Agricultural Education (Credit to be arranged).**—Mr. Sexauer, and Mr. Ankeney.

AGRICULTURAL ENGINEERING

1f, w. **Farm Mechanics.** (3)—Mr. Wooley, Mr. Jones.

2f, sm. **Farm Construction Methods.** (2)—Mr. Wooley.

3w. **Farm Buildings.** (3)—Mr. Wooley.

10f, and sp. **Farm Shop Practices.** (2)—Mr. Jones.

11f, w and sp. **Farm Gas Engines.** (3)—Mr. Jones.

20sm. **Surveying & Drainage.**—(3)—Mr. Wooley.

21f. **Farm Drainage.** (2)—Mr. Wooley.

30w. **Farm Machinery.** (2)—Mr. Jones.

40w. **Farmstead Equipment.** (2)—Mr. Wooley.

100f, 101w, 102s. **Special Problems.** (2-5)—Mr. Wooley and Mr. Jones.

112f and sp. **Farm Tractors.** (2)—Mr. Jones.

113w, and sm. **Automobiles.** (2)—Mr. Jones.

122w. **Irrigation and Drainage.** (2)—Mr. Wooley.

110f. **Teaching Farm Mechanics.** (1) Mr. Wooley, Mr. Jones.

ANIMAL HUSBANDRY

1f, w, sp and sm. **Types and Market Classes of Livestock.** (3)—Mr. Chittenden, Mr. Fox, and Mr. Edinger.

2f and sm. **Breeds of Livestock.** (3)—Mr. Chittenden.

3w and sp. **Livestock Judging.** (3)—Mr. Chittenden.

4f and w. **Slaughtering of Domestic Animals and Cutting and Curing of Meats.** (2)—Mr. Edinger.

5f. **Cutting and Curing of Meats.** (1)—Mr. Edinger.

100f, sp and sm. **Principles of Animal Nutrition.** (3)—Mr. Hogan.

- 101w and sm. **Animal Breeding.** (3)—Mr. Trowbridge.
 102f. **Advanced Livestock Judging.** (3)—Mr. Weaver.
 103w and sp. **Beef Production.** (3)—Mr. Weaver.
 104w. **Sheep Production.** (2)—Mr. Fox.
 105w and sm. **Pork Production.** (3)—Mr. Weaver.
 106w. **Horse Production.** (2)—Mr. Chittenden.
 107w. **Stock Farm Management.** (2)—Mr. Trowbridge.
 200f, 201w. **Seminar.** (1)—Mr. Trowbridge.
 202w. **Animal Nutrition.** (2)—Mr. Hogan.
 203f, 204w, 205s. **Research in Animal Husbandry.** Hours to be arranged.—Mr. Weaver, and Mr. Trowbridge.
 206f, 207w, 208s. **Research in Animal Breeding.** Hours to be arranged.—Mr. Mumford.
 209f, 210w, 211s. **Research in Animal Nutrition.** Hours to be arranged.—Mr. Hogan.

BOTANY

- 1f, w, sp and sm. **General Botany.** (5)—Mr. Robbins, Mr. Maneval, Mr. Eyster, and Miss Lindsay.
 3f, w, sp and sm. **General Bacteriology.** (3)—Mr. Robbins and Mr. Maneval.
 10f. **Field Botany.** (3)—Mr. Eyster.
 100w. **Plant Physiology.** (5)—Mr. Robbins.
 101sp. **Taxonomy and Ecology.** (3)—Mr.
 102f. **Plant Pathology.** (3)—Mr. Maneval.
 103w. **Advanced Plant Pathology.** (3)—Mr. Hopkins.
 106w. **Histological Methods.** (2)—Mr. Robbins, Miss Lindsay.
 106w. **Genetics and Plant Breeding.** (3)—Mr. Eyster.
 107w. **Mycology.** (3)—Mr. Hopkins.
 111f and 112w, sp and sm. **Special Problems.**
 200f and w. **Seminar.** (1)—Mr. Robbins, Mr. Maneval, Mr. Hopkins, Mr. Eyster.
 201f and w. **Advanced Plant Physiology.** (2-5)—Mr. Robbins.
 202f, 203w, 204s. **Research.**—Mr. Robbins, Mr. Maneval, Mr. Hopkins, Mr. Eyster.

CHEMISTRY

- 1f, w, sp and sm. **General Inorganic Chemistry.** (5)—Mr. Schlundt, Miss Dover, Mr. Stearn and Assistants.
 2f, w, sp and sm. **General Inorganic Chemistry.** (3)—Miss Dover, Mr. Schlundt.
 15f, w, sp and sm. **Elementary Organic Chemistry.** (3)—Mr. French.

25f, w and sp. **Analytical Chemistry.** (5)—Mr. Stearn, and Assistants.

27f, w, sp and sm. **Qualitative Analysis.** (3)—Mr. Kriege.

110f, w, sp and sm. **Organic Chemistry.** (5)—Mr. Calvert, Mr. Peters.

CITIZENSHIP

1f and 2w. **Citizenship.** (5)—Mr. Loeb.

DAIRY HUSBANDRY

1f, w and sm. **Elements of Dairying.** (3)—Mr. Swett.

100w. **Milk Production.** (4)—Mr. Ragsdale, Mr. Swett.

101w. **Dairy Feeding.** (1)—Mr. Ragsdale, Mr. Turner.

102f and w. **Dairy Bacteriology.** (4)—Mr. Reid, Mr. Nelson.

103w. **Market Milk.** (4)—Mr. Reid, Mr. Nelson.

104f. **Dairy Products.** (5)—Mr. Reid, Mr. Nelson.

106f, w, sp and sm. **Special Problems.** (Credit to be arranged)
—Mr. Ragsdale, Mr. Swett, Mr. Reid, Mr. Brody.

201f and 202w. **Seminar.** (1)—Mr. Ragsdale, Mr. Reid, Mr. Brody.

204f, 205w, 206sp and sm. **Research in Dairy Husbandry.**—Mr. Ragsdale, Mr. Swett.

207f and 208w. **Research in Biochemical Phases of Dairy Husbandry.**—Mr. Brody.

210f, 211w, 212sp and sm. **Investigations in Dairy Manufactures.**
—Mr. Reid.

ENTOMOLOGY

2f, w, sp and sm. **Applied Entomology.** (3)—Mr. Haseman; Mr. Sullivan.

103w. **Insect Anatomy.** (2)—Mr. Haseman.

104f. **Classification of Insects.** (2)—Mr. Sullivan.

109f. **Beekeeping.** (2)—Mr. Haseman; Mr. Sullivan.

110w and sm. **Insects of the House, Garden, and Home Premises.**

(2) Lectures and field work.—Mr. Haseman, Mr. Sullivan.

111f. **Insects of Field Crops.** (2)—Mr. Haseman.

122w. **Insects of Live Stock and Poultry.** (2)—Mr. Sullivan.

113f and sp. **Insects of the Orchard and Truck Crops.** (2)—Mr. Haseman, Mr. Sullivan.

114f. **Field Practices in Insect Control.** (2)—Mr. Haseman.

115w. **Relation of Insects to Disease.** (3)—Mr. Haseman, Mr. Sullivan.

116f. **Morphology, Histology, and Development of Insects.** (3)—Mr. Haseman.

120f, 121w, 122s. **Special Problems.** (Hours to be arranged)—Mr. Haseman, Mr. Sullivan.

200f, 201w and 202s. **Research.**—Mr. Haseman, Mr. Sullivan.

203f and 204w. **Seminar.** (1)—Mr. Haseman, Mr. Sullivan.

FIELD CROPS

1f, w and sm. **Field Crops.** (3)—Mr. Etheridge, Mr. Stadler, Mr. Helm, Mr. Letson.

2w and sm. **Field Crops Management.** (2)—Mr. Helm.

101w. **Grain Crop Production.** (3)—Mr. Etheridge, Mr. Stadler, Mr. Letson.

102f. **Field Crop Grading and Marketing.** (2)—Mr. Letson.

103f. **Forage Crop Production.** (3)—Mr. Letson.

104f. **Fiber Crops.** (2)—Mr. Etheridge.

105w and sp. **Field Crops Improvement.** (3)—Mr. Stadler.

106w. **Research Methods.** (2)—Mr. Etheridge, Mr. Helm, Mr. Stadler, Mr. Letson.

107f, 108w and 109sp. **Special Problems.** Credit to be arranged. The teacher may be elected.

202f, 203w and 204s. **Research.**—Mr. Etheridge.

205f. **Seminar.** (1)—Mr. Etheridge.

GEOLOGY

1f, w and sp. **Principles of Geology.** (5)—Mr. Branson, Mr. Tarr, Mr. Mehl, Mr. Rutledge.

2f, w and sp. **Physical Geology.** (3)—Mr. Rutledge, Mr. Williams.

HOME ECONOMICS

1f, w, sp and sm. **Selection and Preparation of Food.** (3-5)—Miss Stone, Miss Blakey, Miss Cline.

10f, sp and sm. **Household Problems.** (2)—Miss Stanley, Miss Blakey.

11f, w, sp and sm. **Food Problems of the Household.** (2)—Miss Blakey, Miss Stillman, Miss Cline.

50f, w and sp. **Elementary Clothing.** (5)—Miss Gleason, Miss Caton.

52w. **Principles of Selection and Construction of Clothing.** (3)—Miss Gleason, Miss Caton.

55w. **Millinery.** (2)—Miss Gleason, Miss Thompson.

- 60f, w, sp and sm. **Home Nursing.** (2)—Miss Stallings.
- 101f, w, sp and sm. **Household Sanitation.** (3)—Mrs. Rosa.
- 110f and sp. **House Planning and Furnishing.** (3)—Miss Arnold.
- 111w. **Advanced House Planning.** (Credit to be arranged)—Miss Arnold.
- 115f, w, sp and sm. **Household Management.** (3)—Mrs. Rosa, Miss Whipple.
- 120f and sp. **Food and Nutrition.** (5)—Miss Whipple.
- 121w and sm. **Dietetics.** (3)—Miss Whipple, Miss Cline.
- 122sm. **Field Work in Dietetics.** (To be arranged).—Miss Whipple, Miss Cline.
- 130f. **Metabolism and Dietetics.** (5)—Miss Stanley, Miss Stillman.
- 145f, sp and sm. **Dress Design.** (3)—Miss Arnold.
- 146sp. **Advanced Dress Design.** (3)—Miss Arnold.
- 150f and sp. **The Clothing Problem.** (5)—Miss Gleason, Miss Caton.
- 151w and sm. **Advanced Clothing.** (5)—Miss Gleason.
- 170f. **Methods of Extension Teaching in Home Economics.** (Credit to be arranged).—Miss Heyle.
- 175f and w. **Extension Practice Teaching in Home Economics.** (2)—Miss Heyle.
- 200f and 201w. **Home Economics Seminar.** (1)—Miss Stanley.
- 205f, s, and 206w. **Research in Food Preparation.** (Credit according to amount of work).—Miss Stanley.
- 210w. **Special Problems. House Furnishing.** (Credit to be arranged).—Miss

JOURNALISM

- 127w. **The Agricultural Press.** (3)—Mr. Childers.
- 150w. **Agricultural Advertising.** (3)—Mr. Childers.

METEROLOGY

- 1w. **Meterology.** (1)—Mr. Reeder.

PHYSICS

- 1f, w and sm. **Elementary Physics.** (5).

POULTRY HUSBANDRY

- 1f, sp and sm. **Elementary Poultry Raising.** (3)—Mr. Kempster, Mr. Henderson.

2w and sm. **Poultry Production.** (3)—Mr. Kempster, Mr. Henderson.

103f. **Marketing Poultry Product.** (3)—Mr. Kempster.

104f. **Poultry Judging and Breeding.** (3)—Mr. Kempster, Mr. Henderson.

105w. **Poultry Farm Management.** (3)—Mr. Kempster.

106sp and w. **Incubating and Brooding Practice.** (3)—Mr. Kempster.

107f, w and sp. **Special Problems.** (2)—Mr. Kempster, Mr. Henderson.

200f and 201w. **Seminar.** (1)—Mr. Kempster.

202f, 203w and 204s. **Research in Poultry Husbandry.**—Mr. Kempster.

RURAL LIFE

2f, w and sp. **Principles of Rural Economics.** (3)—Mr. Gromer.

3f, w and sp. **Application of the Principles of Rural Economics.** (2)—Mr. Gromer.

101w, sp and sm. **Marketing and Distribution.** (3)—Mr. Johnson.

103f and sp. **History and Principles of Cooperation.** (2)—Mr. Gromer.

105f, sp and sm. **Farm Accounts.** (3)—Mr. Frame.

107w. **Farm Finance.** (3)—Mr. Gromer.

110w, sp and sm. **Farm Organization.** (3)—Mr. Johnson, Mr. Frame.

111f. **Farm Labor, Wages and Prices.** (2)—Mr. Johnson.

112f and sp. **Advanced Cost Accounting.** (2)—Mr. Frame.

113w and sp. **Farm Administration.** (2)—Mr. Johnson.

115f, w and sm. **Rural Sociology.** (3)—Mr. Morgan.

116w and sp. **Land Utilization.** (2)—Mr. Johnson.

117f, w and sm. **Rural Community Organization.** (2)—Mr. Morgan.

119f. **Extension Work.** (2)—Mr. Morgan.

120f. **Agricultural Geography.** (2)—Mr. Gromer.

121w. **European and American Agricultural History and Policy.** (2)—Mr. Gromer.

200f, w, sp and sm. **Seminary.** (Arranged)—Mr. Johnson, Mr. Gromer, Mr. Morgan, Mr. Frame.

205f, w, sp and sm. **Special Problems. Thesis Required.**—Mr. Johnson, Mr. Gromer, Mr. Morgan, Mr. Frame.

SOILS

- 1f, w and sm. **Soils.** (5)—Mr. Miller, Mr. Albrecht, Mr. Duley, Mr. Krusekopf.
2w and sp. **Soil Management.** (3)—Mr. Miller.
100f. **Soil Fertility.** (3)—Mr. Albrecht.
102w and sp. **Soil Surveying.** (2)—Mr. Krusekopf.
104f. **Soils of the United States.** (2)—Mr. Miller.
105w. **Soil Bacteriology.** (3)—Mr. Albrecht.
106f, 107w, and 108sp and sm. **Special Problems.** (2-5)—Mr. Miller, Mr. Albrecht, Mr. Duley.

VETERINARY SCIENCE

- 1f. **Veterinary Anatomy and Physiology.** (5)—Mr. Backus.
2f and w. **Veterinary Medicine and Surgery.** (3)—Mr. Backus.
103f. **Veterinary Medicine.** (3)—Mr. Backus.
104f and sp. **Stock Farm Sanitation and Disease Prevention.** (3)—Mr. Connaway, Mr. Durant, Mr. Crisler.
105w. **Stock Farm Sanitation and Disease Prevention.** (3)—Mr. Connaway, Mr. Durant, Mr. Backus.
106f. **Diseases of Poultry.** (2)—Mr. Durant.
207f, 208w, and 209s. **Research.** Hours by arrangement.—Mr. Connaway, Mr. Backus, Mr. Durant.

ZOOLOGY

- 1f, w, sp and sm. **General Zoology.** (5)—Mr. Lefevre, Mr. Curtis, Mr. Tannreuther, Mr. Vick.

For further information regarding the Four-Year Curriculum in Agriculture for Men, the Four-Year Curriculum for the Training of Teacher of Vocational Agriculture, and the Four-Year Curriculum in Agriculture and Home Economics for Women write to

F. B. MUMFORD,
DEAN, COLLEGE OF AGRICULTURE,
UNIVERSITY OF MISSOURI
COLUMBIA, MISSOURI

CURRICULUM E.

TWO-YEAR WINTER COURSE IN AGRICULTURE (SHORT COURSE)

GENERAL STATEMENT

The purpose of the two-year winter course in agriculture, which is more often called the Short Course, is to teach better farming

methods and to develop a better knowledge of the business of farming. It is essentially a practical course for practical farmers. More than 3,500 young men and women have enrolled in this course and each of these has become a better farmer by reason of the instruction obtained. At present, 300 men and women annually enroll in this course. They come from nearly every county in Missouri and from many adjoining states.

The short winter course gives the largest possible amount of practical instruction in judging, breeding, and growing corn and other grains and forages; in soil fertility, field crops, and farm buildings; in live stock judging, stock feeding, animal breeding, and live stock farming; in growing, handling, and selling orchard products; in breeding, feeding and handling dairy cows; in making ice cream, butter and cheese, and handling milk products; in farm butchering and meat curing, in diseases of farm animals and their treatment; in injurious insects; in farm carpentry and blacksmithing, and handling farm machinery, tractors, and gas engines; in poultry raising; in farm management; in the keeping of farm accounts; and in rural problems, cooperation, etc.

Admission. Any person more than 16 years old may enroll for instruction in the two-year winter course. No entrance examinations are given, but those admitted are supposed to have at least the equivalent of a common school education before entering. The work given is so flexible that many persons of mature years and much experience have found it profitable to attend this course along with young men and women not yet out of their teens. It is not uncommon to find a boy of 18 years attending classes along with a matured and successful farmer more than 40 years old. Sometimes father and son both attend the course.

Time. The two-year winter course is arranged for the convenience of farmers. All of the work comes in November, December, January, and February. One can work on the farm eight months of the year and go to the short course the other four.

The course is divided into four terms. Two terms are offered each year. Each term is eight weeks long. The first term of the short course begins Monday, October 30, 1922, and the second term, January 1, 1923.

Each of the four terms is complete within itself. All the subjects taught in each term are finished at the end of the term, so that each term is a complete eight weeks' short course. Students can enter in November or January, which ever is most convenient.

Expenses. Student in the two-year winter course pay no tuition. A library, hospital and incidental fee of \$10 for each term, is

required of all students, and a laboratory fee in those departments in which the students use materials.

Most of the instruction is given by lectures and demonstration. Books, however, are recommended, and it is desirable that the winter course students add to their libraries by the purchase of a few standard books on agriculture.

Certificate. Students who complete the required work of the two-year winter course will be given a certificate of graduation.

CURRICULUM F.

SHORT COURSE IN HOME ECONOMICS FOR WOMEN

The Short Course for Women lasts eight weeks. It begins January 1, 1923, and ends February 23, 1923. The time corresponds to the first term of the Two-Year Winter Course. Work is given in those subjects with which a woman as a practical home-maker should be familiar. Economy in the management of household affairs is the keynote of the whole course. The student learns how to save material, time, and labor. The course offers the kind of knowledge which a woman can apply in her every-day housework and relations to the farm. In addition to the courses in home economics, practically all the work offered in the Two-Year Winter Course for men is open to the women who desire to elect any of these courses.

Entrance Requirements. Any woman more than 16 years old may attend. Older women who have had the care and responsibility of managing a house will find much that will interest them, and, because of their experience, they will derive even greater benefit from the course than girls who are less experienced. It is desirable that all students should have at least a common school education. There are no entrance examinations.

Fees and Expenses. There is no tuition fee, but each student pays an incidental fee of \$10 and small laboratory fees to cover cost of materials used.

CURRICULUM G.

SPECIAL CREAMERY COURSE

This course includes a study of the fundamental principles involved and practical work in manufacturing, handling and marketing of creamery butter, ice cream, certain other products such as cottage cheese, cultured milk, etc., and the production and handling of market milk. It prepares men for the best positions in creameries, market milk and ice cream plants and for the operation of large private dairies

where the production and handling of milk or the manufacture of dairy products is an important feature. Any creameryman, ice cream maker or milk plant man wishing to advance himself or others planning to get into dairy manufacturing work should take this course. The demand for capable trained men along these lines exceeds the supply. This course begins January 1, 1922, and ends February 23, 1923.

Each student who enters this course will pay the usual laboratory fees, which total approximately \$15.00 and the library, hospital and incidental fee of \$10.00.

OUTLINE OF THE COURSE

	Lecture Periods	Laboratory Periods.
Elements of Dairying	24	16
Milk Production	24	0
Market Milk	16	8
Dairy Mechanics & Refrigeration	0	16
Creamery Buttermaking	16	16
Ice Cream Making	16	16
Dairy Bacteriology	8	8
Judging Dairy Products	0	8
Creamery & Milk Plant Management	8	0

For further information concerning the Short Winter Courses in Agriculture, write to SAM B. SHIRKY, SUPERINTENDENT OF SHORT COURSES, UNIVERSITY OF MISSOURI, COLUMBIA, MISSOURI.

THE FARMERS' WEEK SHORT COURSE

In January each year the College of Agriculture offers a short course in agriculture for farmers in connection with the Farmers' Week program arranged in co-operation with the State Board of Agriculture, and the various agricultural associations of the state. In this course special lectures and demonstrations in soils, farm crops, animal husbandry, dairying, farm engineering, horticulture, farm management, entomology, rural economics, veterinary science, poultry farming and home economics are given in the classrooms, laboratories, and live stock pavilion belonging to the University.

This course will be given again January 15 to 19, 1923.

FACULTY, COLLEGE OF AGRICULTURE

JOHN CARLETON JONES, A. B., A. M., Ph. D., LL. D.,

President—Professor of Latin

F. B. MUMFORD, B. S., M. S.,

Dean, Faculty of Agriculture, Director Agricultural Experiment Station, Professor Animal Husbandry

HENRY MARWIN BELDEN, A. B., Ph. D.,

Professor of English

EDWIN BAYER BRANSON, A. B., A. M., Ph. D.,

Professor of Geology

SIDNEY CALVERT, B. Sc., A. M.,

Professor of Organic Chemistry

ZORA GOODWIN CLEVINGER,

Professor of Physical Education and Director of Athletics

JOHN WALDO CONNAWAY, D. V. S., M. D.,

Professor of Veterinary and Comparative Medicine, Veterinarian to the Agricultural Experiment Station.

WINTERTON CONWAY CURTIS, A. B., A. M., Ph. D.,

Professor of Zoology and of the Teaching of Zoology

WILLIAM CARLYLE ETHERIDGE, B. S. in Agri., M. S., Ph. D.,

Professor of Field Crops

VICTOR RAY GARDNER, B. S., M. S. A.,

Professor of Horticulture

LEONARD HASEMAN, A. B., A. M., Ph. D.,

Professor of Entomology. Entomologist to the Agricultural Experiment Station. Chief Inspector of Nurseries

ESSIE MARGARET HEYLE, Ph. B.,

Extension Professor of Home Economics

ALBERT G. HOGAN, A. B., B. S. in Agri., Ph. D.,

Professor of Animal Husbandry

OLIVER RAY JOHNSON, B. S. in Agri., A. M.,

Professor of Farm Management

HARRY LAVERNE KEMPSTER, B. S.,

Professor of Poultry Husbandry

HENRY HERMAN KRUSEKOPF, B. S., A. M.,

Professor of Soils

GEORGE LEFEVRE, A. B., Ph. D.,

Professor of Zoology

ARTHUR JOHN MEYER, B. S. in Agri.,

Director of the Agricultural Extension Service

MERRITT FINLEY MILLER, B. S. in Agri.

M. S. A., Professor of Soils

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Professor of Rural Sociology in charge of training for Rural Social Service
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